WEST COAST VETERINARIAN

JUNE 2022 | Nº 47

BOAS

MENTAL HEALTH FOR VETERINARY STUDENTS

MEASURING BLOOD PRESSURE IN CATS

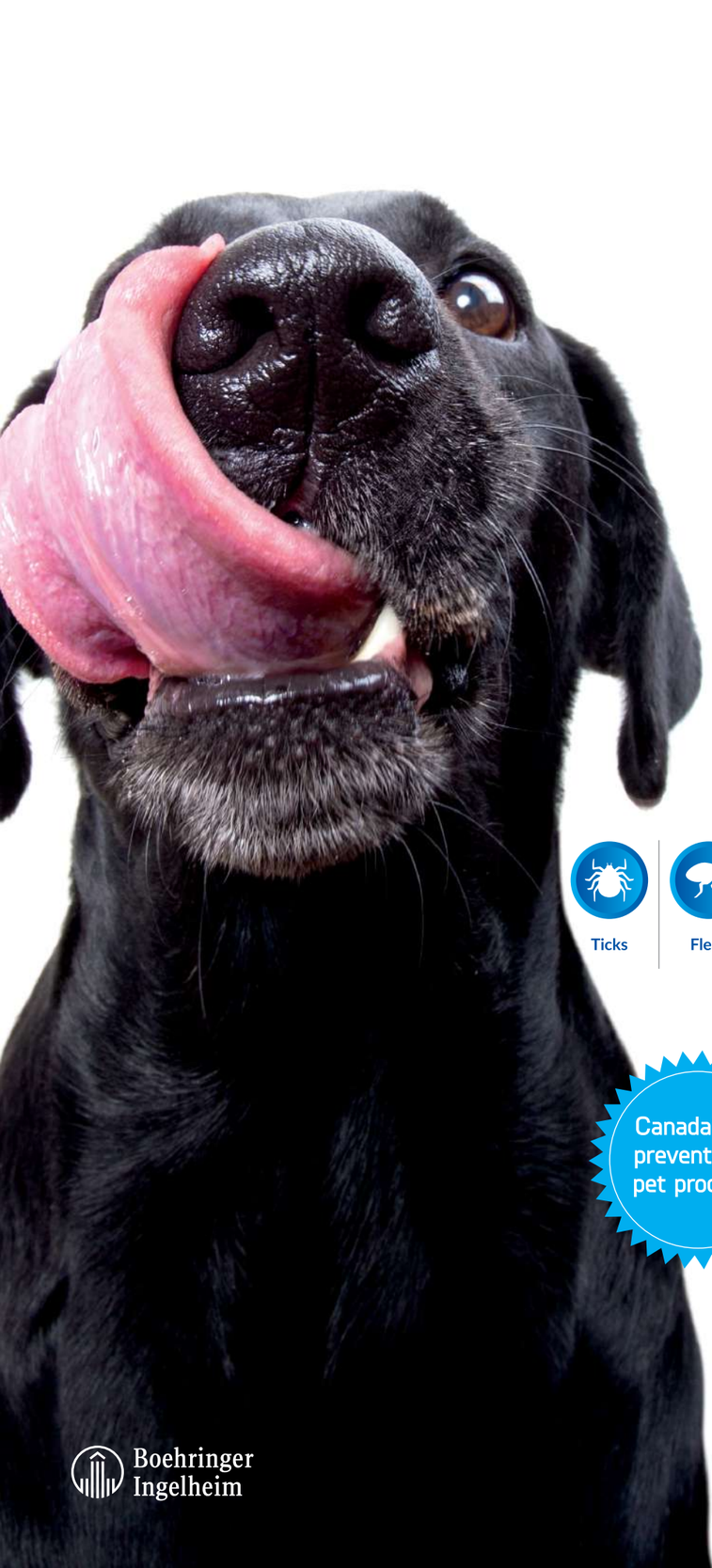
INVOLUNTARY URINE LEAKAGE DURING SLEEP

OBESITY AND NUTRITION

DEFAMATION IN ONLINE REVIEWS

HUMANE DOG TRAINING

SBCV
CVMA-SBCV Chapter



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COREY VAN'T HAAFF
EDITOR

West Coast Veterinarian editor Corey with her newest addition to the family, Zelda the Aussie Doodle. In this photo, eight-month-old Zelda gives her opinion on this issue's cover.

TO THE EDITOR

Letters from members are welcome. They may be edited for length and clarity. Email us at wcveditor@gmail.com.

ON THE COVER

Photo by Shand and Your Dogs Photography. Dogs being trained by Northern Noses Pet Services (dog trainer Amy Atkinson).

As I write this message, I'm sad to say goodbye to our programs coordinator, Nafoni Modi. Nafoni has been a wonderful part of SBCV for the past year and a half, and I am very sad to see her go, yet my feelings are buoyed by the knowledge that she will be taking on meaningful work helping Black women in business. She will be fabulous in that role.

Thank you to those who have been sending your best wishes for my dogs and cat as all but one battle serious health issues. Happily, all are still with me, though their lousy health has taken its toll on Dan and me. It's become our norm to alter our social life to always be home for the dogs, alter our spending decisions to make sure veterinary bills are always covered, and alter the way we sleep to be sure Mommy can wrap her arms around Ella the fractious Chihuahua while leaning a leg against Zelda the puppy and occasionally reaching over the side of the bed for a pet on Tikka's German Shepherd head. Leo the cat doesn't dare enter the bedroom after dark.

We at SBCV were so happy to hear about the increased $10.7 million to fund an additional 20 seats at WCVM, but our joy was short-lived. The announcement actually included $8.5 million that was already announced a few years ago and is a slight increase to the cost per seat negotiated in the interprovincial agreement (IPA).

The new money is $2.2 million to fund an additional 20 students for ONLY their first year of study, plus monies to fund the current 26 or so non-IPA students (who pay $69,000 per year tuition) only for this one coming year. We hope that this short-term funding is simply a function of how budgets are built, and that the BC government will permanently fund 40 BC students each year upon intake. We have more than 140 qualified BC students applying at WCVM, so making 40 happy, compared to only 20, makes me very happy. We are also committed to working with WCVM to ensure applicants who are from remote, rural, and northern communities; who are Indigenous; and who wish to practice medicine for large animals and animals raised for food receive some preference in the BC application pool.

As we are (apparently) coming out on the other side of COVID-19, I'm excited about the return to in-person events, such as our dental wet lab, which was a success in early May, and our November Fall Conference and Trade Show featuring excellent speakers including Dr. Serge Chalhoub, Dr. Linda Crews, Dr. Odette O, Dr. Katherine Pankratz, and Dr. Allison Foster. We will be releasing our program shortly with our Save the Date announcements (check the inside back cover of this issue). Our industry partners, again, have not let us down and have flocked to reserve the trade show tables we have available. I cannot wait to see you all again. WCV

Email: wcveditor@gmail.com

SBCV staff each earned a course certificate in Indigenous Canada from the University of Alberta.

WCV
JUNE 2022

WEST COAST VETERINARIAN ISSUE 47

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WEST COAST VETERINARIAN

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ERINNE BRANTER, BVSc, DACVIM (Small animal internal medicine), was raised in Victoria, BC, and graduated from Melbourne University. She then completed a rotating internship in New York City at Animal Medical Center and an internal medicine residency at the University of Madison–Wisconsin. She found a love for interventional/minimally invasive techniques and completed a year-long interventional radiology/endoscopy fellowship again in New York. She is a founder of the WAVES veterinary hospital on Vancouver Island and runs the internal medicine department.

HUGH DAVIES, PhD, CIH, is a senior researcher at the School of Population and Public Health at the University of British Columbia with expertise in exposure assessment. He is currently the primary investigator on an ongoing study of antineoplastic drug surveillance in Alberta and Minnesota hospitals. He has been a principal investigator on over 25 previous studies and has authored over 60 peer-reviewed publications in the field of occupational and environmental exposure assessment.

NICOLE FENWICK, MSc, is a graduate of the UBC Animal Welfare Program. In her work at the BC SPCA, she leads the AnimalKind accreditation program and develops science-based, humane standards for animal-related services, including wildlife control, dog training, and pet care services. She is past volunteer board chair for the Canadian Society for Humane Science.

CHENG YU HOU, BSc, completed his Bachelor of Science degree in Applied Animal Biology and is currently working on his MSc degree in the Animal Welfare Program at the University of British Columbia. His research focuses on improving the welfare of companion animals and understanding the quality of social interactions between animal wellness volunteers and cats in animal shelters. He also works as an auxiliary animal care attendant at the BC SPCA Vancouver branch.

ELAINE KLEMMENSEN, DVM, CEC, is always up for an adventure, especially if it involves people, pets, and creating connections in veterinary medicine. A self-described nerd about leadership, workplace culture, and organizational development, Dr. Klemmensen is a Certified Executive Coach holding the ACC-level certification with the International Coaching Federation as well as a certificate in Values-Based Leadership. Dedicated to helping veterinarians and their teams move from surviving to thriving, she founded Evolve Leadership Coaching and Consulting and is currently studying visual facilitation and strategic thinking. She lives in the beautiful West Kootenays and when not learning something new is most likely exploring the world by bicycle with her husband, Rob.

DAVID LANE, DVM, DACVSMR, operates Points East West Veterinary Services, a sports medicine and rehabilitation medicine specialty practice in Squamish, BC. His caseload includes the diagnosis and treatment of lameness conditions in both working and pet dogs. Approximately one-third of his practice is devoted to the palliative treatment of geriatric animals for chronic pain conditions such as arthritis. His research interests include the use of regenerative medicine in tendon and ligament repair, and the link between lower back pain and urinary incontinence.

TRINA LEGGE, RVT, graduated from the Veterinary Technology Program at Algonquin College and became a Registered Veterinary Technician in 2012. She followed her dreams in 2013 to Northern College's Companion Animal Physical Rehabilitation Program, then headed out to work in Victoria, BC. She has worked as an RVT in general practice, emergency medicine, and specialty surgery before creating the rehabilitation department at WAVES Veterinary Hospital. She enjoys volunteering with the Canadian Animal Assistance Team and also works with the Canadian Animal Blood Bank.

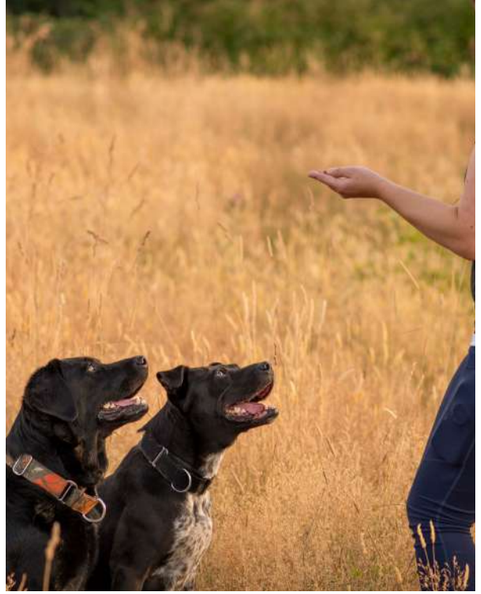
ALEXANDRA PROTOPOPOVA, PhD, CAAB, has a doctorate in behaviour analysis from the University of Florida. She is an assistant professor in the University of British Columbia's Animal Welfare Program. Her research focuses on the physiology, behaviour, and welfare problems experienced by companion animals housed in shelters and pet homes.

ADRIANA REGALADO, MVZ, AVDC, graduated from the University of Guadalajara, Mexico, in 2000. During her internship at the Small Animal University Hospital at the University of Guadalajara, she published a manual of gastroenterology of dogs and cats. She moved to Vancouver in 2005, where she worked as a veterinary technician while preparing for her NAVLE and CPE exams. Dr. Regalado completed a residency program and became a Diplomate of the American Veterinary Dental College. Dr. Regalado has a particular interest in BOAS and brachycephalic dental pathologies.

MARGIE SCHERK, DVM, DABVP (Feline), graduated from Ontario Veterinary College in 1982. In 1986 she opened Cats Only Veterinary Clinic in Vancouver, practising there until 2008. Dr. Scherk became board certified in feline practice by the American Board of Veterinary Practitioners in 1995, recertifying in 2004 and 2014. She founded the feline medicine folder on VIN in 1994. An active international speaker and past president of the AAFP, Dr. Scherk has authored numerous book chapters and scientific papers and is the co-editor of the *Journal of Feline Medicine and Surgery*.

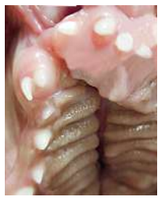
FIONA SENYK, MSc, is completing her master's degree in the School of Population and Public Health at the University of British Columbia and completed her Bachelor of Health Sciences at Simon Fraser University. She is passionate about recognizing and controlling workplace hazards so that workers return home to their families healthy and safe.

KAREN VAN HAAFTEN, DVM, DACVB, graduated from Ontario Veterinary College in 2009. After several years in small animal private practice, she developed a passion for clinical behaviour and completed a residency at the University of California, Davis. She is a board-certified veterinary behaviourist. Her research interests include psychopharmacology, behaviour modification for undersocialized cats, and humane training methods. She lives in Vancouver with two fluffy cats.



28
MIND YOUR MANNERS: WHY DOG TRAINING METHODS MATTER

JUNE



Near the beginning of April, I received a few text messages and emails that stunned me and forced me to double check that it was not April 1. Our provincial government was going to support adding 20 more students under the interprovincial agreement at the Western College of Veterinary Medicine for the 2022–2023 academic year. After close to four frustrating years working to make this happen, you can see why I wanted to be clear that this was not an April Fool's Day prank.

We have to thank the Minister of Advanced Education and Skills Training and the Minister of Agriculture and Food for being able to find the funds to have more students starting in September under the IPA. They have also stated that they would be able to provide some support for the 24 BC students who are currently paying international tuition fees. Hopefully, we are all smiling and looking forward to welcoming our new colleagues in a few years.

This move to graduate more students under the IPA is long overdue and has involved a tremendous amount of time and work spearheaded by our executive director, Corey Van't Haaff, and the SBCV board members. Corey has been communicating with our members and creating lines of communication with various media outlets and with members of the legislature on all sides of the House. Corey has been in touch with our BC students to offer our support emotionally and to keep them apprised of what we are doing.

We have many people to thank for this change in the government's policy. Along with the two ministers mentioned, we need to thank MLA Ian Paton and MLA Coralee Oakes, who frequently and consistently brought the issue to the legislature and media. The Regional Districts of Bulkley-Nechako and Fraser–Fort George formed a community group to bring the shortage of veterinarians to the premier's attention and open dialogue on ideas they have that would help their region. Members of the public wrote to their elected representatives to express their views on this subject. All of this has helped.

We hope that this one-year funding decision will become a permanent funding decision and that it will open more dialogue with the SBCV and the Ministry of Advanced Education and Skills Training along with other stakeholders.

I look forward to visiting WCVM in late September to meet our new BC students and other current students and attend the WCVM Advisory Council meeting. I will take the time to thank the dean and associate dean for all their support in this struggle to have more BC students.

I would also like to let you know that we are very close to launching our mentoring and resiliency support program. If you need help, let us know.

Lastly, I need to thank all of you for your support. Please keep letting us know about your ideas and concerns. I hope you all had a good spring and find time to enjoy summer, and please take care. WCV

Al Longair, BSc, DVM, graduated from the Western College of Veterinary Medicine in 1977. After graduation, he joined a mixed animal practice in Duncan, focusing on small animal practice from 1981 on. He has been involved with the BC SPCA for over 20 years, serving as the president of his local branch for 12 years and on the provincial management committee for 10 years, with four years as president. In the early 1990s, he served as chair of the CVMA Animal Welfare Committee. He lives on a small acreage with his wife, three horses, three dogs, and two cats and coaches youth soccer in his spare time.

As your CVMA president, it is my pleasure to update you on some of the CVMA's initiatives.

THE WORKING MIND PROGRAM

Significant mental health challenges in the veterinary workplace create additional pressures such as time off work, permanent loss of workers, increased cost of disability programs, and reduced workplace productivity and worker satisfaction. The Working Mind Program is a must for all veterinary staff because it addresses workplace mental health issues caused by inherent workplace stresses such as day-to-day workflow pressures, interpersonal relationships, and conflicts as well as workplace stresses specific to veterinary medicine, like ethical and moral distress. There are two courses offered: The Working Mind Employee and The Working Mind Manager, both of which use trained facilitators, workshop manuals, contact-based videos that present actual employees and managers dealing with issues related to the program's content, discussion exercises, and personal goal setting to enact the coping skills within the program. Employees and managers who take Working Mind training have shown an increase in resiliency skills, a decrease in stigmatizing attitudes, and an increase in mental well-being. Visit canadianveterinarians.net/veterinary-resources/veterinary-health-and-wellness-resources/the-working-mind to learn more and register.

TOGETHERALL—A MENTAL HEALTH SUPPORT RESOURCE

The CVMA has expanded its mental health initiatives by offering members, including all Canadian veterinary school students, the Togetherall platform—a powerful mental health support resource available at no cost, anytime, and anywhere there is internet access. Offering the opportunity to improve mental wellness by receiving and providing support, Togetherall is an online peer-to-peer community supported by integrated services and safety nets—including anonymous interactions and supervision by licensed mental health practitioners—that empowers members to openly share their innermost thoughts and feelings in an inclusive environment. We encourage you to visit canadianveterinarians.net/veterinary-resources/veterinary-health-and-wellness-resources/togetherall to learn more about putting your mental health first.

BELL EXCLUSIVE PARTNER PROGRAM AVAILABLE FOR ALL CVMA MEMBERS

CVMA members receive big savings on phones plus up to 30 per cent savings on plans with unlimited data, talk, and text. Members can share savings with up to five friends and family. Visit the Member Benefits section of our website for more information. WCV

Louis Kwantes, MSc, DVM, was born in Michigan and raised in Japan. He now lives Sherwood Park, Alberta, and has for the past 28 years. He graduated from Ontario Veterinary College in 1987 and completed an MSc in Tropical Veterinary Medicine at the University of Edinburgh in 1989. Dr. Kwantes's professional background includes mixed animal practice in Ontario and overseas veterinary postings in Haiti, Uzbekistan, and the Middle East. He is presently at National Veterinary Associates at Park Veterinary Centre, a companion and exotic animal veterinary clinic he co-founded in 1997. He is a past board member of the Edmonton Veterinary Emergency Clinic, past president of the Edmonton Area Small Animal Veterinarians group, and served the Alberta Veterinary Medical Association for over 12 years in a variety of capacities, including as president in 2015. Dr. Kwantes was presented a CVMA award for scholarship and leadership in 1987, shared the CVMA Hill's Public Relations Award in 2006, and was awarded a Rotary Integrity Award in 2015. He is grateful to have represented colleagues as executive member of the CVMA's Executive Committee the past few years and is excited to serve as the 2021–2022 CVMA president. Together with his wife, Janet, he is now an empty nester, save for a spoiled cat. Dr. Kwantes still loves working with animals and people and feels honoured to share in the bond between pets and their caretakers.

INCREASED FOCUS ON MENTAL HEALTH AND RESILIENCE TRAINING FOR VETERINARY STUDENTS

BY MADISON AUDEAU, BSc

Students pose with the paintings they created at Pawsitive Practice's Paint Night. All supplies were provided by the sponsor, Purina Pro Plan Veterinary Diets.

My third-year class at WCVM underwent our much-anticipated fourth-year rotation draft earlier this month. In the weeks beforehand, faculty members gave presentations to the students about what each rotation would look like and fielded questions.

"What is the caseload like? When is it being offered? How many students per block?" And as pointed out by several presenters, the most frequent questions included, "What are the hours?" and "Will I need to be here on weekends?"

There's an argument to be made, and it certainly has been, that veterinarians (or veterinary students in this case) wanting to work fewer hours and to adopt a more traditional nine-to-five schedule is a contributing factor to the veterinary shortage we're facing. Though from what I glean from conversations with classmates as we prepare to enter a profession that has a well-documented mental health crisis, we feel that it's increasingly imperative to prioritize work-life balance and to focus on well-being.

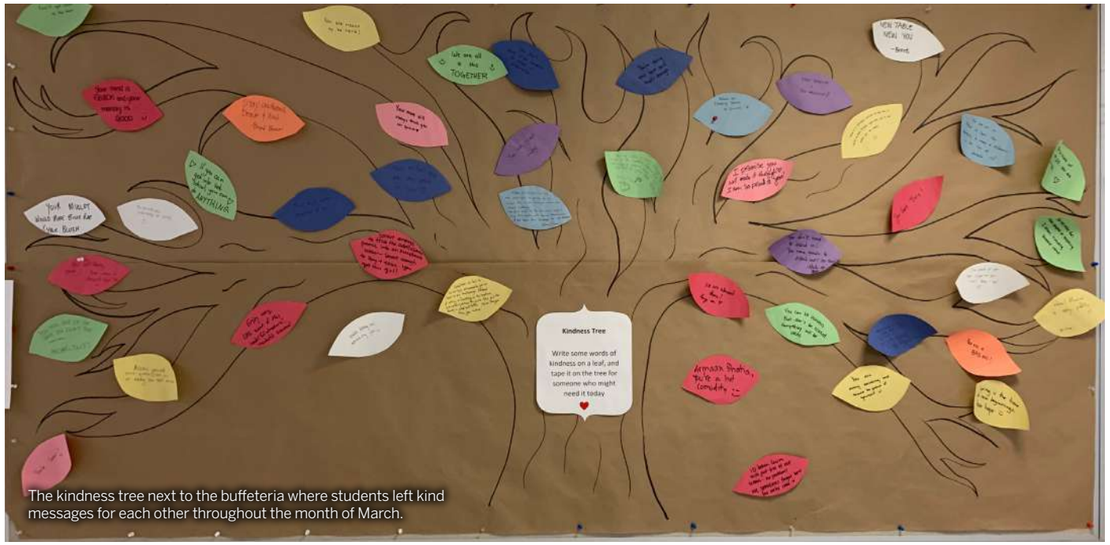
In the CVMA's 2020 Workforce Study, a striking 90 per cent of veterinarians named mental health as the number one issue facing the Canadian veterinary industry, followed only by the shortages of veterinarians and veterinary technicians. Indeed, Canadian veterinarians have higher levels of perceived stress, emotional exhaustion, depression, anxiety, and suicidal ideation, in addition to lower resilience scores, than the general population.

That last one, *resilience*, has been a topic of much focus at the veterinary college lately. There are numerous definitions, but in the broadest sense, resilience is the ability to bounce back after adversity. Resilience empowers people to accept a difficult situation, adapt to it rather than be overcome by it, and then move on. It's what gives us the emotional strength to cope with suffering.

Research shows that the most crucial risk factors for low resilience among veterinarians include a high-stress work environment, working long hours, being a recent grad or a young veterinarian, and being female. I'd venture to say nearly all of us fall into at least one of those categories.

It feels as if recently, perhaps after students' stress was brought to the forefront by the pandemic, the college is making a more concerted effort to promote resilience-building among students before they begin their careers as veterinarians. This spring, we've seen a new initiative piloted in which a social worker from the University of Saskatchewan's Student Affairs and Outreach team has an office on-site at the veterinary college to provide support to veterinary students on short notice. Several times a year, students are also now offered training in mental health first aid. A program focusing specifically on resiliency is also under development and will be incorporated into the curriculum beginning next year.

"IT'S WHAT GIVES US THE EMOTIONAL STRENGTH TO COPE WITH SUFFERING."



The kindness tree next to the buffeteria where students left kind messages for each other throughout the month of March.

PHOTOS COURTESY MADISON AUDEAU

The student-led Western Canadian Veterinary Students' Association has likewise been very active around the college this year with the "Pawsitive Practice" initiative, especially since we've been back in person. The association aims to address four areas of wellness within the student body: stress management, community, physical activity, and nutrition. Josephine Lee, a second-year student from the Lower Mainland, is a representative of the group.

"I care a lot about student mental wellness," said Lee. "Though one of the things that makes me a bit sad is it feels like it's become such a buzzword in our industry. I really want to be the change in the WCVM that pushes mental wellness from just a buzzword into actual action."

Pawsitive Practice has hosted several activities to boost student morale this year, including evenings dedicated to making paintings and potting plants, which provide opportunities for students to step away from their studies and do something fun together just to enjoy each other's company. In March, designated Mental Health Month, Lee also converted one of the neglected billboards adjacent to the college's buffeteria into a "kindness tree," where students can leave encouraging messages for one another.

"We've also partnered up with [Academic Dean] Dr. Chris Clark on a series of talks called A Day in the (Veterinary) Life to get students involved in what life as a veterinarian actually looks like," said Lee. "There are a lot of challenges, though it helps when you have mentors who have gone through that process. It may not be helpful for you right now, but a veterinary career is a lifelong commitment."

As my class looks forward to fourth year and begins studying to write the NAVLE next fall, we'll be focused on readying our brains for the academic rigours of veterinary practice. Still, I hope we find time and space to ready our hearts for the stressful days and ethical challenges ahead as well. Mixed in with the excitement for our impending graduation, for lifelong goals finally achieved, is also a dash of unease as we consider the statistics around mental health in the veterinary community.

Before coming to WCVM, I hadn't planned to disclose my own struggles with anxiety and depression. After all, *if someone's fundamentally broken, how can they fix animals?* As much as we've whittled down the stigma, there's undoubtedly still guilt and shame wrapped up in telling someone you're struggling. Though, over the last three years of getting to know the WCVM student body, it's been eye-opening to learn how many others fight the same battles every day. Whether it be scheduling regular sessions with a therapist or taking medications, it's encouraging to see students being open about and willing to address their mental health challenges, and I only hope that attitude continues as we transition into our careers. If you're struggling, you're absolutely not alone.

Of all the statistics concerning wellness among veterinarians, as a student beginning their veterinary career, it's somewhat bleak, though not entirely surprising, to consider that only 48 per cent, less than half, of Canadian veterinarians said they'd recommend the profession to a friend or family member. Indeed, several classmates and I had veterinarians at clinics we were volunteering at before applying to veterinary school urge us to reconsider. My hope is that in a few years when that inevitable day comes that a client's child in the exam room tells me they dream of becoming a veterinarian when they grow up, that I can encourage them without too much trepidation. WCV

If you or a colleague is in crisis, please don't hesitate to contact the Canadian Suicide Prevention Service at 1.833.456.4566.

To save space, the references for this article are made available on the Chapter's website at www.canadianveterinarians.net/sbcv/west-coast-veterinarian-magazine.

Madison Audeau, BSc, WCVM class of 2023, is from Nanaimo, BC. After a career in radio broadcasting, she earned a BSc in Biology at Vancouver Island University before coming to WCVM. After graduation, she looks forward to returning to the BC coast as a small animal clinician.

PET RATS:

WHERE, WHY, AND HOW DO THEY ENTER AND LEAVE ANIMAL SHELTERS?

BY CHENG YU HOU, BSc, AND ALEXANDRA PROTOPOPOVA, PhD, CAAB

PHOTO COURTESY AMY FLOCKHART, BC SPCA VANCOUVER BRANCH

Wild rats have historically been portrayed negatively in most cultures. In addition to competing for human food and resources, they have been linked to being the source of various zoonotic pathogens. The "bad" reputation assigned to common urban wild rat species (i.e., the brown rat *Rattus norvegicus* and the roof rat *Rattus rattus*), has been generalized to the domesticated fancy rat (*Rattus norvegicus domestica*) as well, likely due to their similar morphological characteristics.

Although the first record of a rat being kept as a pet dates back to the mid-nineteenth century, their popularity as a companion animal is still relatively low—far below that of dogs and cats. Because of this, not much research has been conducted on pet rat welfare, especially in animal rescue shelters and organizations. Over the past five years, however, rats have become the third most commonly surrendered animal to the BC SPCA. This has prompted us to understand the circumstances around rats as companion animals in the community and their surrender to shelters. We set out to ask:

1. Where are these rats coming from?
2. How and why did they end up at the shelter?
3. What features of the rats improve their likelihood for and reduce their time to adoption?

While the purpose of our study was exploratory in nature, we hypothesized that rats of older age, unhealthy status at intake, and dark coat color would be more difficult to rehome. Research conducted in other species who are also adopted, such as cats and dogs, indicates that adopters prefer young and healthy animals (Lepper, Kass, and Hart 2002; Brown and Stephan 2021); furthermore, the fancy rat with dark colouration may too closely resemble the infamous wild rat, further complicating adoption.

We gathered intake and outcome records collected by shelter staff between 2015 and 2020 from 34 BC SPCA animal shelter locations. The physical characteristics of each rat were recorded during the admission process, along with information related to the animal's history. The dataset included age, sex, colour, health status (according to their Asilomar Accords category), their origins, outcomes (such as being adopted or euthanized), as well as surrender and euthanasia reasons. The length of stay at the shelter for each rat was calculated using the intake date and the outcome date, and the value was adjusted to exclude the time when animals were not legally adoptable. Finally, we ran a multiple linear regression to analyze how the various variables affected their time to adoption.

"THE TOP TWO SURRENDER REASONS WERE OWNER-RELATED (A PERSON'S LIFE CHANGE, OWNER COULD NOT AFFORD UPKEEP, DIVORCE, ETC.) AND HOUSING ISSUES."

A total of 3,392 pet rats were admitted to the BC SPCA animal shelters during the five-year interval. Most of the incoming rats (46.5 per cent) were directly surrendered to the shelter, and the top two surrender reasons were owner-related (a person's life change, owner could not afford upkeep, divorce, etc.) and housing issues. Previous research has shown that dog owners have significant barriers to finding housing (Kay et al. 2018); our data showed that rat owners are having a similar experience. Although rats are small, quiet, and typically contained in a cage, limiting the potential for property damage, the difficulty in finding housing may be due to blanket no-pet rental policies or negative cultural attitudes toward rats.

Most of the rats were younger than six months (47.8 per cent), and only 4.1 per cent were older than two years. Furthermore, nearly all rats were sexually intact (98.5 per cent) when they entered the shelter. Such a high number of rat pups in combination with nearly none who were spayed or neutered highlights a potential overpopulation issue. Given that the current husbandry recommendations ask owners to pair or group house rats due to their highly social nature, and owners may not correctly identify sex of rat pups, a likely outcome for owners is unwanted surprise litters. To make things worse, finding veterinarians who offer spay and neuter services to pet rats may be challenging. Owners may also choose to forgo the financial burden of spaying and neutering given that rats are inexpensive pets. In sum, our data suggests that considering spay/neuter services for new pet owners may be useful to reduce shelter intakes of pet rats.

PHOTO COURTESY JESSICA ADAM, BC SPCA VANCOUVER BRANCH

Rats did not fare as well as cats and dogs at the BC SPCA shelters, as only slightly more than half of the rats who were admitted were adopted (59.6 per cent); furthermore, their close-to-a-month (26 days) time to adoption was also much longer than that of dogs and cats. Two-thirds of euthanasias were due to medical and behavioural issues. The remainder, mostly neonates, were euthanized due to lack of capacity in the shelter. Improving spay and neuter services will likely reduce neonate euthanasia by reducing the number of pregnant rats coming into the shelters.

Results from the multiple linear regression suggested that rats who were either senior, unhealthy, albino, seized by humane officers, or born on-site tended to stay longer in the shelters. While we anticipated this result for older and unhealthy rats, we were surprised to find that the median length of stay of albino rats (43 days) was significantly longer than any other colour morphs, including those who have a similar colouration to a wild rat (Figure 1). It is possible that adopters might be taken aback by the novelty of pink eyes; however, we did not find any previous study that described the effect of albinism on adoption rate or length of stay. This lack of literature on the topic is likely due to the lack of such colour morphs in other companion animals. Our data suggests that more effort could be put into the marketing of albino rats to reduce their time to adoption.

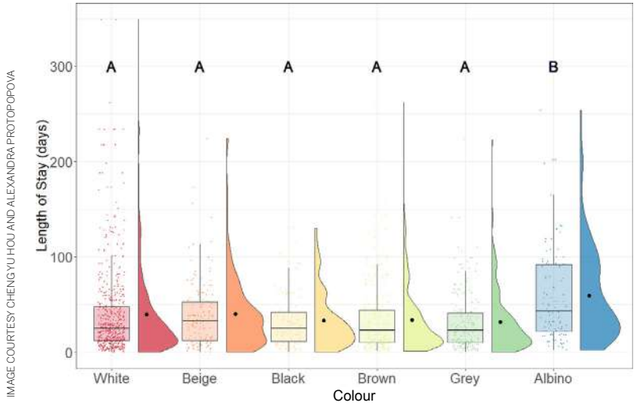


IMAGE COURTESY CHENG YU HOU AND ALEXANDRA PROTOPOPOVA

FIGURE 1: The length of stay of albino rats (median = 43 days; n = 107) as presented by the middle line of the box plot was longer than the white (median = 25 days; n = 589), beige (median = 33 days; n = 158), black (median = 25 days; n = 120), brown (median = 23 days; n = 312), and grey (median = 23 days; n = 193) rats.

Although rats have received great notoriety throughout human history, more and more people have now started seeking them out as companions. Our study identified that housing restrictions and unwanted litters are the two main challenges faced by animal shelters and the pet rat community. Additionally, animal shelters could use our findings to develop programs that help to increase the adoption success of albino rats. As for this study, we were happy to achieve our goal of bringing more attention to the pet rat, an understudied but increasingly popular and lovely companion animal.

This research was originally reported in C. Y. Hou and A. Protopopova, "Rats as Pets: Predictors of Adoption and Surrender of Pet Rats (Rattus norvegicus domestica) *in British Columbia, Canada,"* PLoS ONE 17, no. 2 (2022): e0264262. *To save space, the references for this article are made available on the Chapter's website at www.canadianveterinarians.net/sbcv/west-coast-veterinarian-magazine.* WCV

BY ADRIANA REGALADO, MVZ, AVDC

BOAS

BRACHYCEPHALIC

OBSTRUCTIVE

AIRWAY

SYNDROME

ALL PHOTOS COURTESY ADRIANA REGALADO

We all have that early Monday appointment where a loud stertor can be heard from the hospital's reception. You open the door and there's the source: an adorable five-month-old Frenchie with 10,000 followers on social media. Before you introduce yourself, the young couple will say to you, "We read online that you need to do surgery so Petunia can be a normal dog again." Then you use all your skills to keep your facial expression stoic while slowly transitioning to a smiling demeanour. Let me say we have all been there, trust me.

Let's talk about one of the conditions that has the highest points on the generic illness severity index for dogs: brachycephalic obstructive airway syndrome (BOAS). The breeds that are most affected by this syndrome are the extreme breeds: Pugs (64 to 91 per cent); French Bulldogs (58.9 to 75 per cent); and English Bulldogs (33 to 66 per cent). Previously, BOAS was seen as limited to the upper respiratory system, but as new diagnostic methods and imaging tools develop, new comorbidities are being discovered. Understanding that BOAS is not limited to the respiratory system will help us to establish clear expectations for our clients, as we must warn pet owners that surgical intervention for BOAS has its limitations.

As we reviewed in the first article, breeding for desired phenotypes and specific genes is responsible for the alteration of the skull shape, shortening of the facial length, and development of the turbinal bones. Although the osseous structures are significantly reduced, the amount of soft tissue remains unaltered, resulting in anatomical abnormalities that are considered the primary component of BOAS (stenotic nares, extended nasopharyngeal turbinates/aberrant conchae, macroglossia, and hypoplastic trachea). A narrowed pathway for airflow consequentially increases the resistance and negative pressure in the lumen of the upper respiratory system, giving origin to the secondary components of BOAS (inflamed and hyperplastic soft tissue palate; everted laryngeal tonsils and lateral saccules; laryngeal, bronchial, and tracheal collapse; narrowed rima glottidis; and sleep disturbances).

CLINICAL SIGNS OF BOAS

There are two conditions that give rise to the majority of clinical signs. These conditions are:

1. Breathlessness/impaired respiration and pulmonary ventilation (respiratory effort, air hunger, and chest tightness). Impaired respiration will manifest as stridor (66 per cent), problems sleeping (56 per cent), and collapsing due to dyspnea (36 per cent). Dogs with extreme cases may develop syncopal episodes and death due to suffocation.
2. Insufficient thermoregulation due to the limited nasal mucosa. This results in the most dangerous clinical sign of BOAS, which is exercise intolerance (88 per cent). The inability to perform physical activity is the clinical sign that affects the quality of life of the dogs the most. Heat intolerance, heat stroke, or fainting are other manifestations of poor thermoregulation. Heat stroke can lead to death.

DIAGNOSIS AND GRADING OF BOAS

The diagnosis of BOAS involves multiple steps, from data collection from the owners all the way to sophisticated tests exclusive to specialized facilities dedicated to research. The diagnosis of BOAS can be as early as six months old, but the majority of dogs are diagnosed between the ages of three and five years old.

1. **Collection of data from owners by means of a questionnaire**
   A grading system for BOAS has been proposed based on the information received from the owners on a detailed questionnaire of the type and frequency of respiratory signs. The questions focus on the present frequency of coughing, snoring, sleep apnea, and regurgitation.
2. **Physical examination**
   This was reviewed in detail in the previous article. One important fact that has to be mentioned is that the physical examination alone will miss more than half of the affected population with BOAS. The ability of the clinician to recognize and interpret abnormal upper respiratory sounds that are associated with partial or total upper airway obstruction is key in the diagnosis of BOAS (see Table 1).
3. **Phenotypical conformation**
   The phenotypical conformation of some extreme brachycephalic breeds is considered a risk factor for BOAS. Specific anatomical measurements are used as predicting factors. The presence or absence of stenotic nostrils, body condition score, and neck girth ratio can also be trusted to predict the degree of BOAS. For example, dogs with a high neck girth ratio are 1.2 times more prone to developing BOAS, and dogs with a lower craniofacial ratio and increased neck length are 1.07 times more prone to developing BOAS.
4. **Exercise tolerance test**
   Different protocols for exercise tolerance testing have been proposed, with variations in time, speed, and parameters. The most recent protocol, proposed by Nai-Chieh Liu in 2015, allows a clinical grading to be assigned. The patient is auscultated before and after trotting for three minutes at six to eight kilometres per hour. The following criteria are evaluated:

Sound	Description	Cause
Stertor	Low-pitched sound like a snore generated by the vibration of flaccid tissue.	Elongated palate
Stridor	High-pitched sounds are associated with rigid tissue vibration.	Laryngeal paralysis and tracheal collapse
Wheeze	Sinusoids are generated by central and lower airway walls.	Airway flow limitations or obstructions
Crackle	Rapid damped waves are produced by central and lower airway.	Aspiration pneumonia or bronchitis
Rhonchus	Rapid and damped sinusoids.	Rupture of fluid film

TABLE 1: Abnormal upper airway sounds associated with BOAS.

- The respiratory noises (stertors and stridors) are evaluated by pharyngeal auscultation and assigned a grade of mild, moderate, or severe.
- The inspiratory effort is evaluated by breathing patterns and assessed as mild, moderate, or severe.
- The presence of dyspnea, cyanosis, and collapse are reported as present or absent.
- The recovery time, temperature, heart rate, and respiratory rate are documented.

Incorporating an exercise tolerance test into the examination will increase the diagnosis sensitivity to detect 93.3 per cent of the dogs affected with BOAS. The exercise tolerance test also increases the detection of laryngeal collapse based on the auscultation of laryngeal stridor. Breeds with higher grades before and after the exercise tolerance test were French Bulldogs and Pugs.

5. **Imaging**
   Imaging can be done with X-ray, CT scan, and rhinoscopy. X-rays are used to diagnose a hypoplastic trachea. CT scans of the skull are essential to confirm in detail anatomical variations and free air pathways along with the upper and longer respiratory system. Rhinoscopy will provide information about the endonasal space.
6. **Dynamic functional test or whole-body plethysmography**
   The dynamic functional test or whole-body plethysmography is a specialized test that places a conscious patient inside an acrylic chamber. The chamber has a barometer that measures the pressure oscillations proportional to the tidal volume of the dog.

PRIMARY COMPONENTS OF BOAS

1. **Stenotic nares**
   This condition results from the shortening of the skull, which produces narrow nostrils. During inspiration, the alar folds collapse, impeding the dog's ability to breathe. In some cases, the narrowing continues caudally to the nasal vestibule.

   The degree of nasal stenosis is a reliable criterion to identify the degree of BOAS, as studies show a stress correlation between them.

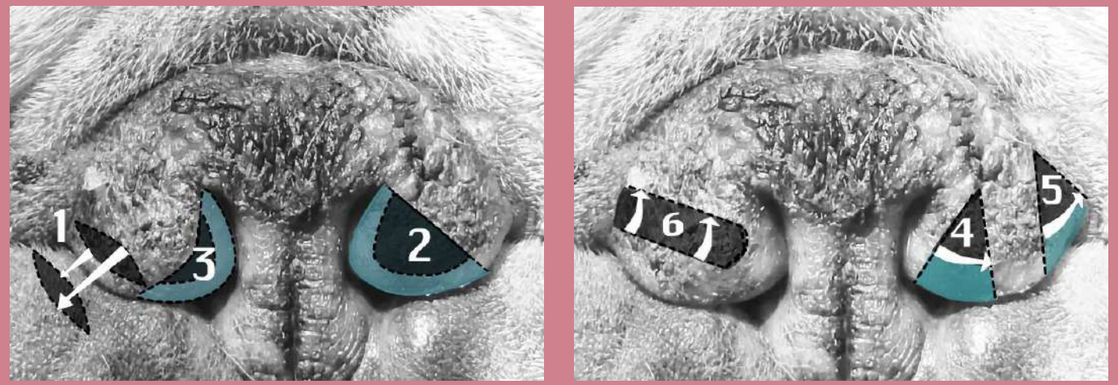
   There are three degrees of stenosis; mild, moderate, and severe. Mild cases show only a low degree of narrowing, and the nostrils move during exercise. In dogs with moderate stenosis, the dorsal aspect of the ala/wing is in direct contact with the nasal septum and does not move during exercise, so nasal flaring is evident. In severe cases, the nostril is mostly closed, and the dog loses the ability to move the nostril during exercise; open-mouth breathing is needed.

   French Bulldogs are the most affected breed with a prevalence of 45 per cent. This makes these dogs 20 times as likely to develop BOAS. Sadly, the airflow resistance after surgery remains higher than in dogs with open nostrils or mild stenosis. Dog with severe stenosis require urgent intervention, but on the other hand, some dogs with open and mild stenosis may not need correction.

Grade	ETT	Respiratory noise	Inspiratory effort	Dyspnea	Cyanosis	Syncope
0	Pre	Not audible	Not present	Not present	Not present	Not present
	Post	Not audible	Not present	Not present	Not present	Not present
1	Pre	Not audible to mild	Not present	Not present	Not present	Not present
	Post	Mild	Not present to mild	Not present	Not present	Not present
2	Pre	Mild to moderate	Mild to moderate	Not present	Not present	Not present
	Post	Moderate to severe	Moderate to severe	Mild	Not present	Not present
3	Pre	Moderate to severe	Moderate to severe	Moderate to severe	May or may not be present	Inability to exercise
	Post	Severe	Severe	Severe	May or may not be present	May or may not be present

TABLE 2: Functional grading of BOAS using the exercise tolerance test (adapted from the Department of Veterinary Medicine University of Cambridge "BOAS Instruction for Bronze Certificate," March 11, 2015, www.vet.cam.ac.uk/system/files/documents/Functionalgrading.pdf).

“WE HAVE A RESPONSIBILITY TO SUPPORT TH E DOG OWNERS IN THEIR RESTLESS JOURNEY.”



Surgical technique for the correction of stenotic nares. 1. Alopexy/abduction of the ala: using a scalpel, two elliptical incisions are made, one on the ventral lateral ala and another on the adjacent skin. The exposed surfaces are then opposed and closed in two layers. 2. Trader’s technique: partial amputation of the ala/wing performed with a scalpel, cranioventral to the dorsolateral nasal cartilage. 3. Laser ablation technique: Uses a CO_2 laser to ablate the ala/wing, medioventral to the dorsolateral nasal cartilage.

Aloplasty: A wedge-shaped full-thickness section is surgically removed from the alar fold in a lateral, horizontal, or vertical direction. Then the nasal epitheliums are apposed and sutured. 4. Vertical wedge resection aloplasty: the wedge’s medial border remains parallel to the medial wall of the ala. 5. Dorsolateral lateral wedge resection aloplasty. 6. Horizontal wedge resection aloplasty: performed in medial to lateral directions.

2. **Elongated and hyperplastic soft palate**

Based on the length, a soft palate is considered abnormally long when the caudal end extends beyond the tip of the epiglottis. Based on the thickness, a soft palate is considered hypertrophic when it is more than double the standard measurement from normocephalic dogs. The most affected breeds are French Bulldogs (7.9 to 8.0 mm) and Pugs (6.9 to 7.2 mm). Males are overrepresented.

A thicker and larger soft palate will restrict the nasopharynx airway. During inspiration, the soft palate is stretching ventrally to the point of interfering with the rima glottidis. This process continues with every respiratory cycle adding to the enlargement and thickening of the palate. The adjacent soft tissue experiences collateral damage related to edema and inflammation. At some point, the already narrow lumens are fully obstructed with soft tissue.

Surgical techniques are cut-and-suture staphylectomy, carbon dioxide laser and diode laser staphylectomy, and folded-flap palatoplasty. The last technique not only shortens but decreases the thickness of the oversized soft palate.

3. **Hypoplastic trachea**

Hypoplastic trachea is diagnosed with lateral X-rays of the cervical neck. The tracheal diameter represents the width of the tracheal lumen perpendicular to its long axis at the level of the first thoracic vertebra. The second parameter is the width of the thoracic inlet, which is the distance between the ventral aspect of the first thoracic vertebra and the dorsal aspect of the narrowest point of the manubrium.

4. **Macroglossia**

Macroglossia is a condition where the tongue is larger and thicker in proportion to the oral cavity. The most commonly affected breeds are French Bulldogs and English Bulldogs. Pugs have the smallest tongue volume but have a similar ratio of total air to total soft tissue. A big tongue will have a soft tissue ratio up to 60 per cent, especially in the area of the pharynx. What happens is that the tongue is pushed dorsally to the soft palate and displaces the air that should be present in the oral cavity. Clinical signs include difficulty in swallowing. Recently, glossectomy has started to be considered as a treatment option, but this remains an extremely invasive surgery.

5. **Nasopharyngeal turbinates**

In cases where the patient does not show significant improvement or only partial resolution is noticed after surgery for nasal stenosis, the presence of nasal pharyngeal turbinates should be ruled out.

The prevalence is up to 91.7 per cent in some brachycephalic breeds. Aberrant nasopharyngeal turbinates form as an extension of conchal overgrowth into the intranasal space, where they interfere with the airway flow. Rostral aberrant turbinates are more common in Pugs and less common in English Bulldogs. Caudal aberrant turbinates may interfere with the airflow at the level of the nasopharyngeal meatus.

Computerized tomography is needed for an accurate diagnosis. The current treatment is known as a laser-assisted turbinectomy and needs to be performed using a diode laser and a rhinoscope. The most common intraoperative complications are hemorrhage (32.3 per cent) and the most common post-operative complication is recurrence (15.8 per cent) as early as six months.

SECONDARY COMPONENTS OF BOAS

1. **Everted laryngeal ventricles**

Everted laryngeal ventricles are a secondary BOAS manifestation and are associated with the development of laryngeal collapse. The saccules are located cranially to the vocal cords. Protruded saccules are easily visualized: they are round, convex, and ivory in colour. Bilateral ventriculostomy can be performed using endoscopic scissors or carbon dioxide laser. The most common intraoperative complication is bleeding, and the most common postoperative complication is edema. Some literature recommends correcting the primary manifestations of BOAS and re-evaluating, as there is a possibility that the everted laryngeal ventricles will resolve once the negative airway pressure is reduced.

2. **Everted tonsils**

Everted tonsils can be unilateral or bilateral. Similarly to everted laryngeal ventricles, once the other components of BOAS are corrected, the tonsils will go back to their regular size and will fit in the crypt. Partial tonsillectomy in dogs with extruded tonsils is recommended when the tonsils are ulcerated or fibrotic.

3. **Laryngeal collapse**

Dog affected with severe and chronic BOAS generate constant negative intraglottic luminal pressure that results in a loss of cartilage rigidity, permanent cartilage deformation, medial deviation of the rostral laryngeal cartilages, and finally collapse of the rostral laryngeal opening.

The process is divided into three stages:

1. Eversion of the laryngeal saccules
2. Loss of rigidity with medial displacement of the cuneiform processes of the arytenoid cartilage
3. The irreversible collapse of the corniculate processes of the arytenoid cartilages and loss of the dorsal arch of the rima glottidis

In dogs with BOAS, the laryngeal abduction remains present most of the time. The breed with the most predisposition is the Pug. Treatment is surgical, and it is needed for stages 2 and 3 of the list above, as they are considered life-threatening. The goal of the surgery is to optimize the airflow at the level of the rima glottidis.

ORAL PATHOLOGIES THAT INCREASE THE CLINICAL SIGNS OF BOAS

1. **Unerupted and partially erupted teeth.**

If the embedded or impacted tooth is located on the maxilla, there is a possibility that the tooth could obstruct the nasal cavity or form a cyst. As the cyst expands or inflammation develops around the tooth, the limited airway can be completely compromised.

2. **Maxillofacial defects**

Brachycephalic breeds, especially Boston Terriers and French Bulldogs, are more prone to developing orofacial cleft defects, especially cleft lip. Chronic rhinitis and aspiration pneumonia are two conditions that will compromise the dog’s respiratory function. Care should be taken when palatal defects are repaired in dogs affected with BOAS, as the high negative pressure generated in the upper respiratory structures and the constant pressure of an enlarged tongue will increase the possibility of surgical failure.

3. **Dental arch malformation and cleft defects**

Oronasal fistulas are acquired palatal defects that are common in the brachycephalic breeds due to the dentoalveolar disharmony (rotated and crowded premolars). Fistulas will induce inflammation and chronic rhinitis, reducing the space available for airway flow even more.

CONCLUSIONS

Brachycephalic breeds will continue to be a growing and demanding population in our practice. As researchers continue to discover new associated pathologies such as apnea and nasopharyngeal mucocele, veterinary surgeons are proposing more and more novel yet questionable and invasive surgical treatments, such as glossectomy, laser ablation of aberrant turbinates, and split staphylectomy.

As veterinarians, we must be aware that opening the nose and shortening the soft palate will only reduce some of the many consequences of careless breeding. We have a responsibility to support the dog owners in their restless journey. Unfortunately, it will take time for breeders and kennel clubs to repair the damage that was done to these dog breeds. WCV

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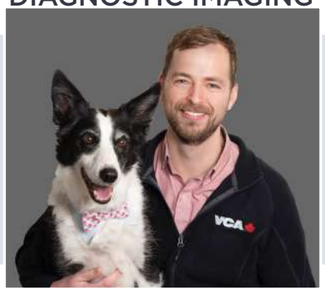

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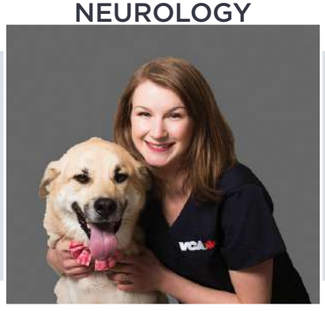

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REHABILITATION

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VCA Canada Central Victoria Veterinary Hospital is pleased to announce that our new emergency and specialty hospital is fully operational. Our specialist facility is equipped with four operating theatres, a 24/7 emergency and critical care unit, comprehensive diagnostic imaging options including CT, MRI, ultrasound and fluoroscopy, an on-site laboratory, and BC's first linear accelerator for radiation therapy in cancer patients. Our emergency, critical care, rehabilitation and sports medicine, neurology, radiology, and radiation oncology departments are available now, and our internal medicine and surgical oncology departments will be added later this year.

We are excited to continue to partner with you and your clients in our new hospital. To view a complete list of our Veterinarians and services, as well as our referral form, please visit our website, or call us with any questions.

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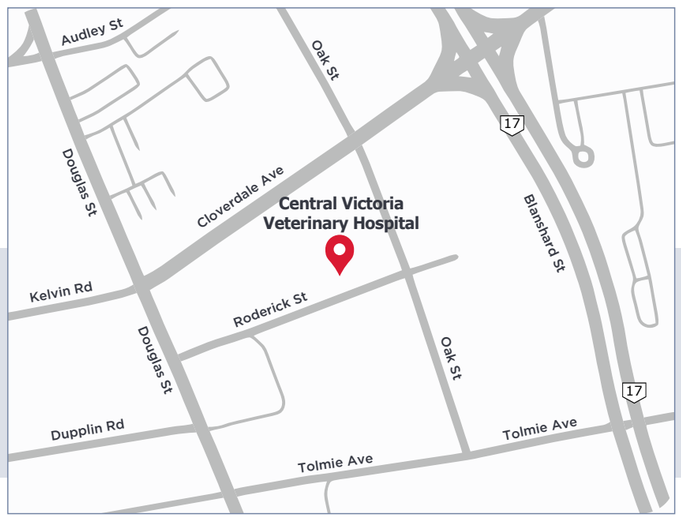


BLOOD PRESSURE— *A CRITICAL FACTOR*

BY MARGIE SCHERK, DVM, DABVP (Feline)

Hypertension is a common disease in cats, mostly secondary to other diseases, but also as a primary problem (essential hypertension). The true frequency, however, remains unknown because blood pressure (BP) is not measured as routinely as temperature, pulse, and respiration (TPR) is in cats. Because of situational hypertension (previously called "white coat syndrome"), many people are reluctant to measure BP, not knowing how to interpret the readings. Two important reviews summarize the importance of measuring and monitoring BP in small animal practice. This article is restricted to describing why, when, and how to monitor BP in cats.

REFRESHER

What is systemic arterial pressure?

- Systolic pressure refers to arterial pressure when the aortic valve is open and the heart is ejecting blood (~120 mmHg)
- Diastolic pressure refers to arterial pressure when the aortic valve is closed and the heart is resting (~80 mmHg)
- Mean pressure is closer to diastolic pressure, as the heart spends most of its time resting in diastole (90 mmHg)
- Excitation, stress, and pain can transiently increase values
- Pressures of >60 mmHg are necessary to maintain perfusion to the brain, heart, and kidneys

We know that:

- BP increases with age in healthy cats
- 13 to 20 per cent of hypertensive cats have primary hypertension (no underlying cause)
- Secondary hypertension occurs
  - In as many as 65 per cent of cats with chronic kidney disease (CKD); there is no linear relationship between degree of severity of CKD and the presence or severity of hypertension
  - In between 10 and 23 per cent of cats at the time of diagnosing hyperthyroidism, with another 25 per cent developing hypertension after initiation of therapy
  - In 46 per cent of cats with primary hyperaldosteronism
- There does not appear to be a direct correlation between hypertension and diabetes mellitus; however, cats with the latter often have concurrent illness that may contribute to hypertension

"MORE IS MISSED BY NOT LOOKING THAN NOT KNOWING" —Thomas McCrae

WHY MEASURE BP?

Because of the effects of untreated hypertension on highly vascular target organs (i.e., eyes, brain, kidneys, and cardiovascular system), it is very important to detect early to prevent permanent damage.

Additionally, monitoring the blood pressure of every anaesthetized patient is critical to ensuring optimal outcome and avoiding intra-operative and post-operative problems. The purpose of this article is to encourage routine measurement of blood pressure in both apparently healthy conscious cats as well as in those with known illness or debilitation or who are under anaesthesia.

IMPACT OF HYPERTENSION ON TARGET ORGANS

Ophthalmic risks

The most well-known consequence of hypertension in cats is retinal hemorrhage with or without detachment in a patient presented for bilateral mydriasis and blindness. However, there are earlier ophthalmic changes that occur when systolic BP is persistently above 160 mmHg. If hypertension is detected before the menace response or pupillary light reflexes are impaired, there is a much better response to antihypertensive therapy and prognosis. On fundic examination, blood vessels appear tortuous and narrowed due to edema and breakdown in the integrity of the retina. These may ultimately result in retinal hemorrhage, detachment, and optic neuropathy. The anterior chamber can be affected, developing hyphema with or without subsequent glaucoma. As research has shown that even an inexperienced new graduate is capable of identifying fundic abnormalities in 72 per cent of visual but hypertensive cats and 100 per cent of avisual hypertensive cats, a fundic exam should be performed in all cats.

Cerebral risks

It is reported that 15 to 46 per cent of cats with hypertension have neurological signs (hypertensive encephalopathy). These may present as a decline in cognitive function (disorientation, night-time yowling), be misinterpreted as "just getting older" (ataxia, depression), or be more dramatic (seizures, vestibular signs). If hypertension is the single underlying cause, treatment with amlodipine or telmisartan may result in clinical improvement.

Renal risks

Nephrosclerosis (renal arteriosclerosis and glomerulosclerosis) is seen in hypertensive cats with CKD. Although it is unclear whether the hypertension contributes to progression of CKD (as it does in humans and in dogs), hypertension can contribute to proteinuria in CKD, and proteinuria is associated with shorter survival in cats.

Cardiovascular risks

Left ventricular wall stress from persistently elevated BP can result in left ventricular hypertrophy. Gallop sounds, murmurs, or arrhythmias may be heard.

WHEN TO MEASURE BP (AND IN WHOM)

Geriatric cats (>10 years of age) are at risk for hypertension due to their predilection for those conditions resulting in secondary hypertension (i.e., CKD, hyperthyroidism, primary hyperaldosteronism). As such, it is logical to screen and follow cats with these conditions to identify hypertension. After nine years of age, blood pressure increases 1 to 2 mmHg per year in apparently healthy cats. However, hypertension may occur in younger cats either on its own or due to secondary causes. In all cases, early identification and treatment is important to prevent or correct existing target organ damage (TOD).

One review recommends that healthy adult cats, as young as three years of age, have BP measurement performed annually. The reasoning is to obtain baseline measurements for the individual. Clearly caution is warranted in interpreting any elevations unless underlying disease or TOD is noted. Other reasons for assessing BP routinely are to acclimate the patient to the procedure when the results are of lower importance. If cats receive positive reinforcement through gentle handling and treats, the likelihood of falsely elevated readings may be less in senior years. Additionally, by getting more practice, the skill and ease of the staff performing measurements will increase, resulting in fewer sources of stress.

Taylor et al. (see references) give the following frequencies for monitoring systolic blood pressure in cats by age for healthy cats:

- Adult cats (three to six years of age): consider every 12 months
- Senior cats (7 to 10 years of age): at least every 12 months
- Geriatric cats (≥11 years of age): at least every 6 to 12 months

Frequency for other cats:

- With recognized risk factors including CKD, treated and untreated hyperthyroidism, primary hyperaldosteronism: measure immediately and reassess every three to six months
- Receiving drug therapy (e.g., erythropoietin, darbepoetin): measure immediately and reassess every three to six months
- With evidence of TOD: measure immediately and reassess every three to six months or more often, depending on progression of problem and response to treatment

Blood pressure should also be carefully monitored in cats with hypotension (e.g., fragile, ill, or moribund patients) or at risk for hypotension (e.g., under anaesthesia, receiving antihypertensive agents, or receiving other drugs with hypotensive/vasodilatory properties). As hypotension is detrimental, the underlying causes should be corrected wherever possible (e.g., optimizing blood volume, reducing anaesthetic depth, or decreasing the dose of the responsible drug).

HOW TO MEASURE (AND INTERPRET) BP

Situational (previously termed "white coat") hypertension is a transient rise in BP associated with the neurohormonal impact of stress associated with transit and the experiences of a veterinary visit. The effect of stress in one study increased systolic BP by as much as 80 mmHg. This distress must be taken into consideration in the entire approach to the feline patient (for example with the Cat Friendly Practice program or the Fear Free program) as well as in the timing and manner in which BP is measured.

A recent paper by Navarro et al. (see References) reports the results of a cross-sectional survey of 733 veterinarians measuring BP in cats. In 85 per cent of clinics, veterinary nurses/technicians performed the procedure. Almost 70 per cent of clinics used a Doppler device, which they believed to be more trustworthy than oscillometric devices. The majority (90 per cent) focused on reducing situational hypertension by:

- Using a quiet location
- Minimizing restraint
- Measuring before other procedures
- Avoiding other animals
- Allowing time to acclimate

In four studies of healthy conscious cats, the normal mean feline blood pressure measured 117 to 132 mmHg systolic, 78 to 96 mmHg diastolic, and 94 to 115 mmHg mean arterial pressure. These studies were all performed using implanted radiotelemetric blood pressure devices. When an indirect Doppler device was used to measure the BP of 780 healthy, conscious cats, in a shelter setting, systolic values ranged between 110 and 132 mmHg (mean 120.6). Earlier studies reflecting a variety of equipment and techniques reported BPs ranging from 118 to 162 mmHg. Most oscillometric devices underestimate BP in conscious cats (and in dogs under 11 kilograms). High-definition oscillometry (HDO) has been shown to provide accurate results and may be easier to use in conscious patients than traditional oscillometric devices. Diastolic measurements using current methodologies are less useful than systolic measurements; therefore, the latter should be relied upon for clinical assessment.

The 2018 ACVIM hypertension guidelines suggest criteria for validation of BP monitoring devices. To date, none of the aforementioned devices have been validated using those criteria. It is *extremely* important that a standardized protocol be used when measuring BP so that values attained by different people and at different times can be compared (accuracy and precision). The environment, allowing the cat to acclimate, calm personnel, gentle positioning of the patient, and the position and size of the cuff are all factors that affect the reading. Tail placement may be optimal for HDO, while the forelimb may be best for Doppler methodology. The cuff should be at the vertical level of the heart. Refer to Taylor et al. (see References) for a detailed description of using Doppler and HDO devices. See www.canadianveterinarians.net/sbcv/west-coast-veterinarian-magazine for videos showing BP measuring technique.

With a Doppler device, causes of artificially high BP values include fear, noise, and the sensation of the cuff inflating and deflating. Using a headset with a Doppler device is important to reduce noise. The environment (and people) should also be quiet. It may help to take measurements with the cat on the client's lap. Using a cuff that is too small will also cause artificially high BP readings. Causes of artificially low values include using a cuff that is too large and occluding the artery by taping the cuff too snugly. The width of the cuff should be 40 per cent the circumference of the limb at the place the cuff is positioned (see Appendix).

Repeated measurements should be taken to decrease the effect of stress. Once the systolic BP readings are consistent, the mean of five may be considered clinically valid. All values should be recorded in the medical record along with the position of the cat, the cuff location and size used, and an assessment of the cat's stress level. A sample BP evaluation form can be found in the AAFP Hypertension Educational Toolkit (catvets.com/hypertension-toolkit).

Decisions to treat should be based on the risk (or presence) of TOD. Normotension is defined as below 140 mmHg (Table 1). Cats without existing TOD with BP above 160 should be rechecked at four and eight weeks; if BP is greater than 180 mmHg, check at one and two weeks. If the BP remains elevated at either time (or TOD is noted), antihypertensive therapy should be initiated.

TREATMENT OF HYPERTENSION

The goal of treatment is to reduce the risk of TOD with an initial goal of 160 mmHg and an ultimate, long-term target of 140 mmHg systolic BP. Amlodipine besylate is a calcium channel blocker that reduces peripheral vascular resistance with minimal cardiac effects. It will reduce BP by 30 to 70 mmHg. It is the first drug of choice in treatment of hypertension, as it is the most effective and may be used as a monotherapy. Starting dose is 0.625 mg/cat PO q24h. Cats with BP of ≥200 mmHg may be started at 1.25 mg/cat PO q24h titrating cautiously up to 2.5 mg/cat PO q24h. In cats with proteinuric CKD, it may also reduce proteinuria.

Telmisartan, an angiotensin receptor blocker, is licenced for treatment of CKD-associated proteinuria but has shown modest effects on hypertension at 1 to 3 mg/kg PO q24h. ACE inhibitors and beta blockers have been traditionally used for therapy; however, they are not as effective as amlodipine used as monotherapy. They could be considered as adjunctive therapy if amlodipine titration is inadequate.

While adverse effects are rare, reassessment should be made to ensure that the dose is adequate and to ensure hypotension (<110 mmHg) does not occur. In cats with evidence of TOD or BP ≥200 mmHg, measurements should be repeated frequently during the first 24 to 72 hours. If there is no TOD, reassess every 7 to 10 days until ideal BP has been achieved. Once controlled, the BP should be monitored every three months along with parameters of underlying disease, should it be present (e.g., serum creatinine, T4, fundic re-evaluation).

SUMMARY

Measuring blood pressure provides important information that can prevent severe clinical consequences. Veterinarians should identify and monitor cats at risk for developing hypertension, using a reproducible technique. With practice, and taking care to minimize stress, meaningful results can be attained. WCV

Measuring blood pressure on the tail.

PHOTO COURTESY MARGIE SCHERK

OPENING PHOTO AND TOP RIGHT PHOTO COURTESY THAMES MEDICAL

"REPEATED MEASUREMENTS SHOULD BE TAKEN TO DECREASE THE EFFECT OF STRESS."

Category	Systolic blood pressure (mmHg)	Risk of target organ damage
Normotensive	<140	Minimal
Pre-hypertensive*	140–159	Mild
Hypertensive	160–179	Moderate
Severely hypertensive	≥180	Severe

**Cats with BP in the pre-hypertensive range may or may not progress; these patients should be rechecked more often than normotensive patients.*

TABLE 1: Hypertension classification based on risk of target organ damage (attributed to Acierno et al.).

To save space, the references and appendix for this article are made available on the Chapter's website at www.canadianveterinarians.net/documents/west-coast-veterinarian-summer2022-references.pdf.

Measuring blood pressure at the hind leg.

PHOTO COURTESY AMERICAN ASSOCIATION OF FELINE PRACTITIONERS (CATVETS.COM)

MIND YOUR MANNERS:
WHY DOG TRAINING METHODS MATTER

BY NICOLE FENWICK, MSc, AND KAREN VAN HAAFTEN, DVM, DACVB

Veterinarians in general practice are familiar with seeing dogs who have had very little training and clients who are struggling with how to train their pet. The importance of good training for dog welfare cannot be overstated. Training, achieved most often with the help of a professional trainer, can assist dog guardians with puppy socialization, body handling, medication administration, and teaching learned cues that help keep dogs safe and make them easy to care for (e.g., walking on a leash, house training, and recall).

In contrast, lack of training can result in poor "manners," fearfulness, and other behavioural issues, all of which have the potential to severely limit the enjoyment and relationship that guardians seek to have with their dogs. It can also impede their health care. Like many veterinarians in general practice, Dr. Hatley McMicking sees first-hand how poor training affects veterinary exams. She says that for example, "Negative experiences at home can cause animals to not let me touch their face or mouth at all," posing a challenge for dental exams.

In addition, when dominance, punishment-based, or other unscientific aversive training methods are used, unwanted behaviours can be made worse. Dr. Claudia Richter, a resident at the American College of Veterinary Behaviorists, frequently sees the unwanted outcomes of aversive handling in her veterinary behaviour practice. A common example is when guardians push their dogs down and onto their backs (the so-called "alpha roll"). She explains that this technique "often leads to dogs biting when people try to pet them, especially in dogs that roll on their back when they meet people."

PROBLEMS WITH AVERSIVE TRAINING METHODS

According to the American Veterinary Society of Animal Behavior, aversive training methods are those that rely on the application of force, pain, or emotional or physical discomfort. This can include use of training tools such as shock, prong, or choke collars or actions such "alpha rolling," spraying water, or throwing noise-making items to startle the dog (i.e., coin cans). For some particularly fearful dogs, activities that are not intended (or designed) to cause pain or be intimidating may still have that effect on the dog (for example, raised voices, threatening gestures).

Empirical studies on dog training have documented the negative effects on animal welfare that occur when aversive training (also referred to as "punishment-based training") methods are used. For example, during training sessions using aversive methods, dogs demonstrated more stress-related behaviours and body language such as lip licking, paw lifting, and lowered tail and body posture. In addition, more frequent use of aversive training methods, alone or in combination with reward-based methods, is associated with increased reporting of problem behaviours by dog owners including aggressive behaviours. Aversive training methods also present an increased risk of physical injury to the dog.

BENEFITS OF REWARD-BASED TRAINING APPROACHES

Reward-based training methods, also known as "humane training," loosely refer to training techniques and tools that an animal does not perceive as physically or emotionally uncomfortable. To reinforce a desired behaviour, something the animal wants is added (e.g., a food treat), which increases the likelihood the behaviour will reoccur. For example, a treat or other reward is given to a dog when they fetch their ball, which builds their desire to want to continue to fetch. This approach can be used to help a dog learn which behaviours they will be rewarded for performing, with the associated cues, thereby teaching the dog what to do.

Reward-based methods can also be used to help overcome fears and unwanted behaviours. Systematic desensitization refers to a behavioural treatment for phobias that involves slowly presenting the animal with increasingly strong fear-provoking stimuli while keeping the animal under threshold (in a relaxed state). Counter-conditioning refers to the procedure of repeatedly pairing an initially fear-inducing stimulus (conditioned stimulus) and a positive stimulus (an unconditioned stimulus such as food, attention, or play). After related pairings, the animal becomes conditioned to experience a positive emotional response to the previously fear-inducing stimulus.

Reward-based training has been shown to be more effective than aversive training. Studies that have assessed learning outcomes (learning ability and obedience scores) found that use of reward-based training was associated with better training success than aversive methods. In addition, because reward-based training does not rely on the creation of fearful or painful emotional states to achieve training goals, it can improve and strengthen the dog-human relationship.

The evidence-based consensus is that aversive methods harm dog welfare and that reward-based methods are effective at helping dogs learn and strengthening the human-animal bond. This is reflected in position statements from veterinary organizations such as the American Veterinary Society of Animal Behavior and the CVMA, which endorse the use of reward-based training methods only.

OPENING PHOTO AND THIS SPREAD COURTESY BC SPCA

ROLE OF THE VETERINARIAN

Passed down through the influence of family and dog culture, and in some cases popularized by the media, unscientific or aversive training methods are often the only training techniques pet guardians are aware of. Words like "command" and "obedience" are from the strong influence of military training methods from the 1950s and 60s, and tools like choke, shock, and prong collars (used exclusively for punishment-based training) are readily found on the shelves and online at most major pet supply retailers. These influences, combined with the lack of regulation for the dog training and pet services sector in Canada, make choosing a training method or a trainer confusing for dog guardians.

Fortunately, veterinarians are well-placed to counter misinformation and provide early intervention and science-backed advice on training, trainers, and dog behaviour. In a 2021 poll of dog-owning British Columbians, 84 per cent of respondents indicated one of the most important factors in having trust in a dog trainer was a recommendation from their veterinarian.[1] For Dr. McMicking, the opportunity to influence her clients' dog training choices occurs frequently. She explains, "I make recommendations for training nearly daily, and the needs can range from basic lack of training to fearful or aggressive behaviours."

"UNSCIENTIFIC OR AVERSIVE TRAINING METHODS ARE OFTEN THE ONLY TRAINING TECHNIQUES PET GUARDIANS ARE AWARE OF. WORDS LIKE 'COMMAND' AND 'OBEDIENCE' ARE FROM THE STRONG INFLUENCE OF MILITARY TRAINING METHODS."

DEMYSTIFYING DOG BODY LANGUAGE AND TRAINING TOOLS

It is very important that guardians understand that dogs communicate through their bodies. Guardians need to be able to identify positive body language, which includes loose, wiggly bodies, relaxed ears and mouth, and soft eyes. Clients should also be counselled to recognize signs of anxiety and fear, such as panting, yawning, lowered or crouching bodies, and lifting up a single front paw. Fearful dogs may also have their ears pinned back, the whites of their eyes showing (whale eye), and/or be licking their lips. Dr. McMicking finds it easy to bring up body language because many of her clients want to talk about their dog's behaviour. She says, "When possible, I try to point out specific body positions during the exam so the client can have a visual for what we're discussing."

Explaining specific behavioural observations to a pet guardian can have a big impact. Dr. Richter recalled a client describing their dog as friendly and enjoying being petting by anyone, which differed from the dog's actual behaviour in the clinic. "I pointed out that while he was friendly toward myself and my staff, he never once solicited petting, but sniffed me multiple times, took treats from me and played with a toy. Once I pointed it out, they realized that he was friendly, but might not necessarily enjoy petting from an unfamiliar person."

"WHAT SUCCESS LOOKS LIKE FOR THE INDIVIDUAL DOG MAY NOT FIT THE OWNER'S IDEAL IMAGE OF A COMPANION DOG."

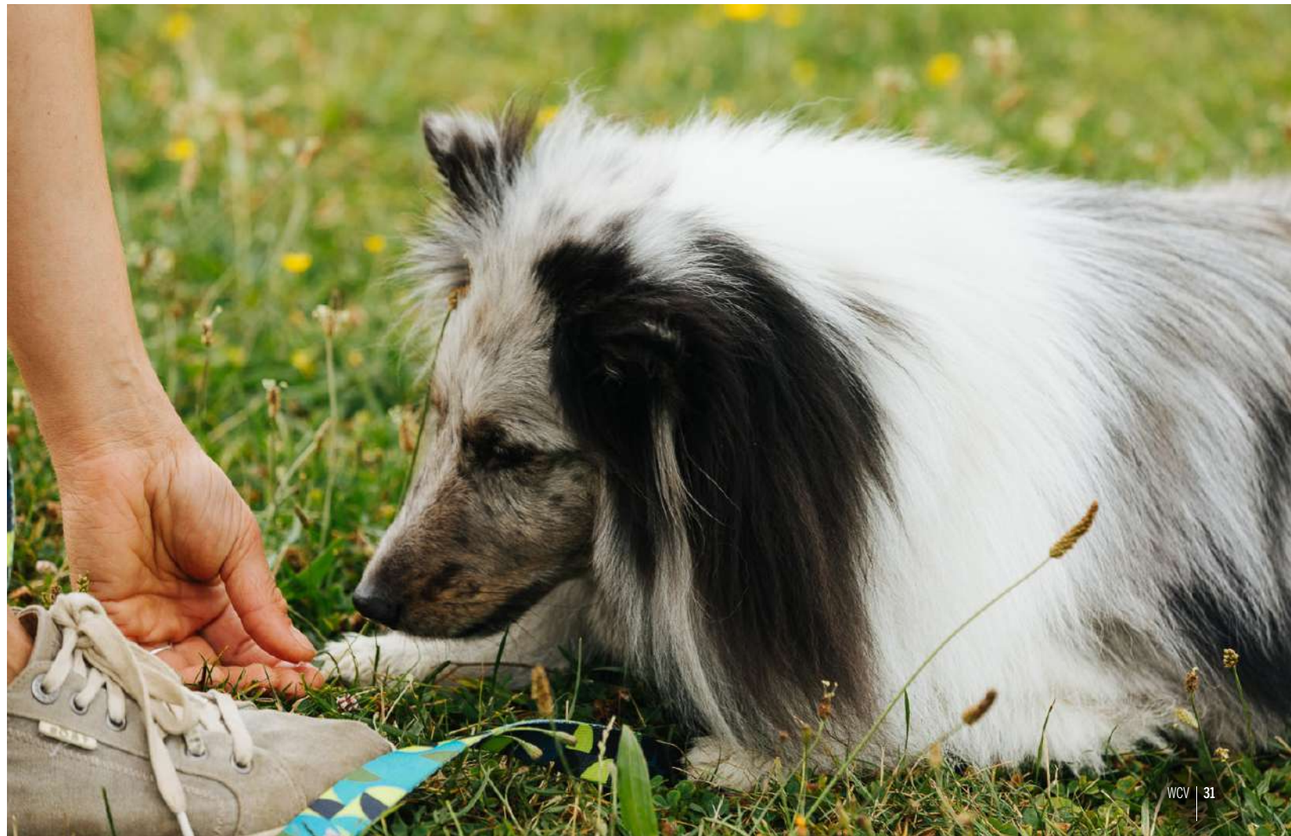
Veterinarians can also provide guidance on training equipment, in particular flagging items that are designed to control dogs using aversive and painful stimuli. These can include prong collars and slip leads that tighten uncomfortably around a dog's neck when pulled, electric shock collars, and harnesses designed to cinch the thorax, abdomen, or prepuce. It is important to explain to clients that even tools that aren't designed to be aversive can still be uncomfortable if they are not introduced properly and positively to the dog. This is often true for head halters and basket muzzles.

EXPECTATIONS AND ENVIRONMENTAL MANAGEMENT

Helping guardians manage their expectations of what a "trained" dog looks like is another area for intervention. Clients may need to be guided away from the harmful idea that if their dog does not respond robotically and perfectly to cues, that somehow training has failed. Encourage them to reflect on what reasonable goals for training look like, and what their vision for their relationship with their dog truly is.

"I discuss with clients the importance of being both open to and patient with the pet's final results, as what success looks like for the individual dog may not fit the owner's ideal image of a companion dog," says Dr. McMicking. She recalled a client who wanted their dog to accompany them to cafés and breweries; however, this dog was fearful in busy, crowded environments, and sometimes barked and snapped at visitors to their home. The client was counselled to define a more realistic outcome for their dog. "It's possible that training may give this dog the tools to be happy in a brewery, or it may just be that the dog learns to let people into the home in a controlled manner but can't handle public venues. Both are wins and should be celebrated, even if the final outcome isn't exactly what the client expected having a dog would be like," said Dr. McMicking.

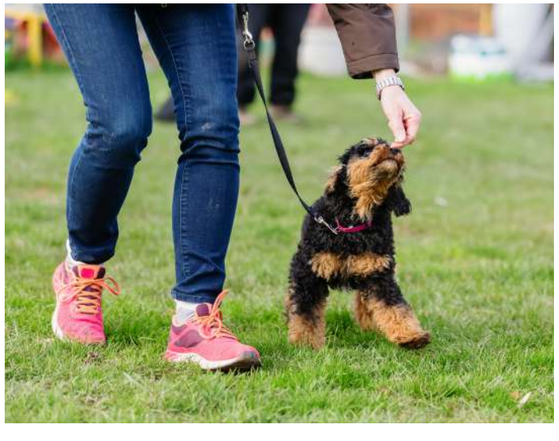
Veterinarians can also support clients by explaining the role that environmental management has in successful training outcomes and minimizing unwanted behaviours (i.e., house training and stopping excessive barking and jumping). Management includes actions such as containing a puppy within a small area of the dwelling and taking them for regular, frequent potty breaks to reinforce outdoor elimination. For clients with a reactive or fearful dog, environmental management can include covering up house windows at the dog's eye level and planning dog-walking routes to avoid triggers and reduce the times that the dog goes over their tolerance threshold.



HELPING CLIENTS GET TRAINING SUPPORT

Clients can be educated about the available options if they need support with training. In some cases, veterinarians may also be consulted on whether or not anxiety-reducing psychopharmaceuticals are a good option. Dr. Richter advises that clinics put reward-based training resources in their puppy packs, and that veterinarians do their research before recommending a dog trainer. It can be challenging for clients to interpret marketing jargon to identify the truly reward-based trainers in this unregulated industry. Some punishment-based trainers use softer-sounding terms to describe their methods, such as "balanced" dog training, which actually describes training methods that use both rewards and aversive methods such as physical punishment. These trainers may also say that they need to be able to use "every tool in the toolbox" and "corrective tools," and that there is more than one way to train dogs. These trainers should be avoided (see the resources at the end of this article for additional considerations for choosing a trainer).

Dr. Richter has seen many cases where the switch to using reward-based training resulted in dramatic behavioural improvements. "One story recently that sticks out was a dog who was guarding his bed. A 'trainer' had recommended they use dominance to correct the behaviour—getting into the space the dog was guarding, staring at the dog, standing over him in a threatening manner, etc. All of those made things worse and ended up with the dog guarding any space he was in." The family switched to working with a reward-based trainer and started to see changes in their dog because, says Dr. Richter, the dog was now learning that "people in his space meant good things, i.e., treats, and nobody was threatening him anymore. While he still needed more help, the training had already helped make their relationship much better, and the condition had significantly improved."



TOP PHOTO COURTESY RED FLANNEL PHOTOGRAPHY. LEFT TOP PHOTO COURTESY SHELLY KURTZ. LEFT BOTTOM PHOTO COURTESY BC SPCA. RIGHT BOTTOM PHOTO COURTESY LEANNA FENWICK

REFERRING TO A DOG TRAINER

Choosing a trainer can be a challenge for dog guardians, in part because the dog training and pet care services sector is unregulated in Canada. Recommend to clients that they look for trainers who:

- Train with rewards like treats, food, and play
- Make training fun for the dog
- Require dog guardians to watch or participate
- Explain dog behaviour and body language
- Behave professionally and treat you and your dog with respect
- Work collaboratively with veterinarians

Avoid referrals to dog trainers who:

- Use punishment like shouting, pushing, hitting, or leash corrections
- Use shock, prong, or choke collars
- Refuse to let clients watch or participate
- Refuse to use treats or food rewards
- Talk about "dominance" or "alphas"
- Give medical advice or diagnoses

TRAINER ACCREDITATION

The following accreditation programs can help you and your clients find science-based dog trainers.

- BC SPCA AnimalKind: animalkind.ca
- Certified applied animal behaviorist (CAAB): animalbehaviorsociety.org/web/applied-behavior-caab-application.php
- Karen Pryor Academy (KPA): karenpryoracademy.com
- International Association of Animal Behaviour Consultants (IAABC): iaabc.org
- Certification Council for Professional Dog Trainers (CCPDT): www.ccpdt.org
- Academy for Dog Trainers: academyfordogtrainers.com

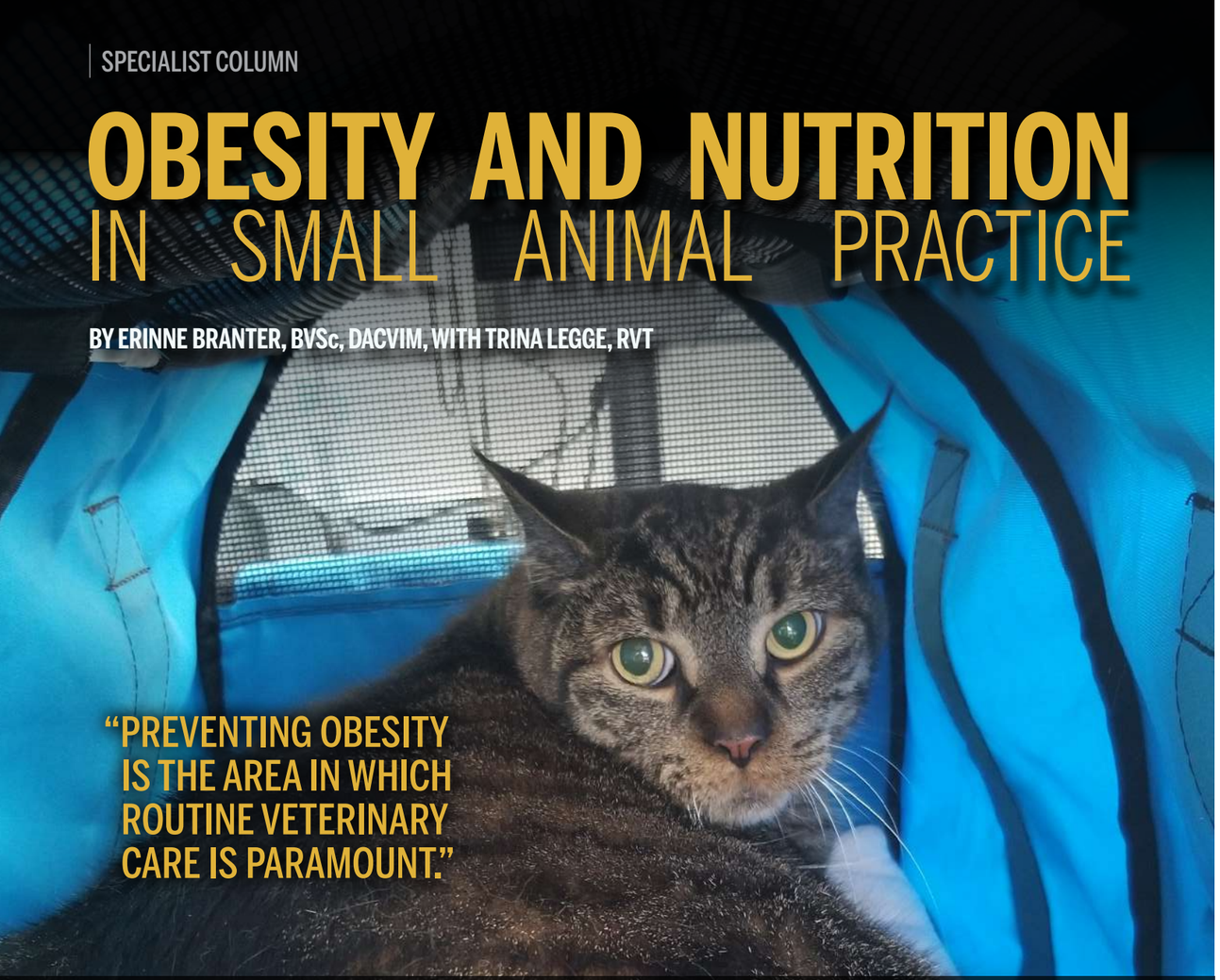
Veterinarians play a key role in pet guardians' decisions about which training or behaviour modification methods to use, and Dr. Richter and Dr. McMicking emphasize that interventions with science-based training advice helps to keep animals in their homes and improves their welfare. Although both aversive and reward-based methods can be effective in changing dog's behaviour, the evidence-based practitioner must also consider the welfare and long-term behavioural consequences of the training methods. On this point, the evidence is clear: aversive methods harm dog welfare, while reward-based training both helps dogs learn and preserves the bond between people and their pets. WCV

[1] Stratcom poll conducted for the BC SPCA May 12–17, 2021 (n = 1,500, margin of error +/–2.5 per cent, 19 times out of 20)

To save space, the references for this article are made available on the Chapter's website at www.canadianveterinarians.net/sbcv/west-coast-veterinarian-magazine.

OBESITY AND NUTRITION IN SMALL ANIMAL PRACTICE

BY ERINNE BRANTER, BVSc, DACVIM, WITH TRINA LEGGE, RVT



"PREVENTING OBESITY IS THE AREA IN WHICH ROUTINE VETERINARY CARE IS PARAMOUNT."

Cedar, a six-year-old male neutered Shepherd cross, presented with suspected osteoarthritis pain and weakness in the hind end, compounded by obesity. His history of inflammatory bowel disease made choosing a diet difficult as he could not tolerate kibble diets; he needed calorie reduction on his current diet. Recovery and green-lipped mussel supplements were added to his raw diet daily, as well as omega fatty acids. He had been receiving acupuncture treatment weekly.

Our rehabilitation veterinarian added pain control in the form of a newer NSAID, Galliprant, with hopes it would be tolerated by his sensitive system. Our rehab plan involved laser therapy, massage, therapeutic exercises at home, electrical stimulation, plus soaking and walking on a water treadmill.

Cedar's diet when we began his program was approximately 1,750 kcal/day of raw food. He could safely lose 1 to 2 per cent body fat (0.83 to 1.66 kg) per week.

Cedar's weight loss journey is ongoing, but his owner is happy with his progress: 5 kg lost in nine months. It can be frustrating, but we watch the trends in weight loss rather than the numbers on the scale. Cedar's exercise tolerance and weight loss have improved his overall mobility and comfort level.

"ENGAGEMENT OF OWNERS AND THEIR UNDERSTANDING AND WILLINGNESS TO IMPLEMENT ANY WEIGHT-LOSS PROGRAM IS THE KEY FACTOR IN SUCCESS AND SHOULD BE THE FOCUS OF EACH APPOINTMENT."

PHOTOS COURTESY TRINA LEGGE

Obesity and nutrition are hot topics these days. With significantly more animals per household, the pandemic leaving many people less active, and many of our feline patients being kept indoors, we are facing challenges in maintaining healthy body conditions for pets.

Full disclosure: I am not a certified/boarded nutritionist. However, I am a small animal internal medicine specialist. In that capacity, I manage many patients with multiple comorbid disease processes who are overweight, under-muscled, and even underweight.

Several guidelines have been published on this topic. See below for tips for owners and resources for your veterinary team. I recommend having a bank of resources to print out for each client with a pet in a weight-loss program. I also suggest assigning one lead staff member to monitor each pet and perform check-ins for those patients routinely. Some quick takeaways are:

1. Optimal weight-loss support occurs through taking a full dietary history and performing a detailed assessment of the pet, owner of the pet, and environment in which they live.
2. Diet selection is based on the amount of weight to be lost, comorbidities, and macronutrient and micronutrient needs for each dog or cat.
3. Frequent follow-ups are required, and owners must be prepared for the intensity of the weight-loss plan.
4. The recommended resources below can be helpful in achieving compliance, success, and maintenance. Many are pre-made, helpful, and readily available.
5. Exercise and rehabilitation may be of use in patients where a combination of obesity and pain hinder success following nutritional intervention.

THE BIG PROBLEM

The big problem is that, not being a primary care provider, prevention is an aspect I typically have limited access to. Preventing obesity is the area in which routine veterinary care is paramount. Client education for puppies and kittens is where we can intervene in hopes of preventing the issue entirely later in life. Inform owners about ideal body condition scoring, limitations to the weight/food guide charts in pet foods, and appropriate physical activity. I would recommend bringing pets into the clinic for routine weight monitoring or having owners check weights at home for nervous pets.

THE PET

The first step is to accurately identify both the pet's baseline body and muscle condition scores. Use a consistent scoring system for your hospital. Remember that the same animal can be both overweight and cachexic, leading to varying needs for protein in diets.

Consider having an objective chart on the wall to encourage owners to evaluate the patient themselves so they can have a clear idea of where you are and what your goal is for their pet.

HOW DID THE PET GET TO THIS WEIGHT AND HOW ARE THEY MAINTAINING IT?

The history is *key*. Nutritional assessment is a topic on its own, but assessment is essential to identify previous diets, if the pet has had earlier failures in weight loss programs, and to what degree owners are committed. This may be the most important part of the job. For any plan to be both successful and maintained, owner education is essential.

Treats may be perceived to solidify the animal/owner bond and as such are called "non-negotiables" in many cases. In addition, vague recommendations for cutting back or changing diets are not useful for owners and may lead to confusion and non-compliance.

The engagement of owners and their understanding and willingness to implement any weight-loss program is the key factor in success and should be the focus of each appointment. It is important to ask the owner for a clear history of what a "day in the life" of that pet looks like.

Lance exercising.

This allows you to define what they are eating, when they are eating, and how much they are eating. The environmental factors, such as other pets, treats at the parks, and other caregivers, all need to be considered for optimal compliance.

Common owner concerns are that their pet will always be hungry, won't have enough variety in their diet, will be deprived of treats that they "need" at a certain time, or will get bored with the allowed foods. These are often combined with issues of exercise restrictions due to owner schedules, obesity causing pain, indoor lifestyles, or owners who may have been injured or are themselves sedentary.

I would strongly consider the frequently asked questions from the Tufts obesity clinic as a great guide to start the consultation/conversation. The history allows you to make a clear, individualized plan for each patient that feels sustainable for the owners. In this way, history is the key to success.

DIETARY CHOICES

Use a generalized body mass calorie counting formula and determine the ideal weight for the patient. This will allow you to assess the caloric intake required to sustain this weight.

If the patient has comorbidities, consider consulting a board-certified veterinary nutritionist. This is of particular importance when one considers that patients may have requirements including fat restriction, minimum levels of protein to maintain muscle mass, or urolith prevention, and that patients may have hepatic insufficiency or renal disease.

Typically, for healthy overweight patients, feeding foods with reduced calorie density allows satiation and reduces demands from the pet and begging behaviour. Unfortunately, there are no regulations in Canada for over-the-counter diets, leading to a wide range of caloric densities. The caloric density of each over-the-counter diet or snack your patient receives must be evaluated.

Some research[1] suggests that dry foods with 300


Cedar with Trina Legge.

kcal/cup or less than 3,100 kcal/kg (dogs) and 3,250 kcal/kg (cats) and canned foods with less than 900 kcal/kg (dogs) or 950 kcal/kg (cats) are appropriate for weight management. See also the AAFCO guidelines for successful weight management.

The macronutrients of a diet (protein, fat, and carbohydrates) need to be optimized for each patient. Protein is essential for maintenance of lean body mass (muscle). Therefore, if patients are on a reduced caloric diet, it is important that they are still obtaining adequate protein. Consult a board-certified nutritionist to maintain adequate protein in the face of comorbidities. There are times when obesity may be protective when entering certain disease states. The obesity paradox is that patients entering into chronic illness with renal or cardiac disease have longer survival times than patients with lower body condition scores.

The importance of fat as a nutrient needs to be weighed against its high calorie density. There is a general feeling that low-fat diets are calorically low, but this is not necessarily the case. Fat has 2.25 times as many calories per gram as protein and carbohydrate, but even low-fat diets can be calorie dense, and this needs to be factored in when evaluating the "right" diet for each case.

Carbohydrates are not metabolized in cats and dogs the same way they are in humans. I advise caution in applying the fad of carbohydrate cutting to induce ketosis. Our patients with diabetes can be on diets low in carbohydrates, but they are quite calorically dense, which will not promote weight loss and may cause obesity despite these diets being promoted as weight management diets.

Micronutrients are important and must be adequately maintained in calorie-restricted diets. When over-the-counter diets were evaluated for weight loss, it was found that some were low in some micronutrients. This highlights the need for a nutritionist consultation when attempting weight loss with non-prescription diets.

Fibre is our friend with weight loss. The use of both insoluble fibres (e.g., cellulose and hemicellulose) allows a greater volume of food per calorie and promotes satiation. The fermentable fibres allow us to create satiety by hormonal production that helps pets feels satiated. The best combination for satiety is high fibre and high protein together.

Water is helpful to add bulk to food and create the sensation of satiety. You can either use wet food or for larger dogs, consider using wetted-down kibble for economic reasons. Adding water to dry food may need to be a gradual process over a few weeks.

Optimal diet is based on all the above, and I must admit that owner compliance and dedication is the most important factor of all.

TARGETS

Your initial calculation is based on current food intake. To calculate need energy requirements in kcal/day, I use this formula: 70 × body weight in $kg^{0.75}$. I usually start with 10 to 20 per cent reduction in daily intake as a start. Then I reweigh weekly and move down from there. My typical goals are for 0.5 to 2 per cent weekly body weight loss in dogs and cats. If the weight gain has been gradual, go slowly and steadily to maintain long-term weight loss.

Ask your owners whether they need immediate results, or whether they can be more patient and move the goals accordingly. In the end, goals that are achievable for the owner are more likely to be reachable and sustainable.

Call your veterinary food company of choice. They will be excited to help you formulate a weight loss plan.

MAINTENANCE

Once the weight loss goal has been reached, owners may want to move to an over-the-counter diet. Please take into account caloric differences and go slowly in the transition to allow for rechecks to be performed and avoid the all too common "rebound" of weight. As in humans, we often see previously obese patients regain the weight they lost.

Use handouts, clear objectives, and routine check-ins to keep compliance. We use our rehabilitation department in many cases to allow for continued contact and monitoring. Exercise has been instrumental in weight loss programs for us. I work closely with our rehabilitation department to ensure patients get the full spectrum of care they need to achieve a healthy, mobile, pain-free life.

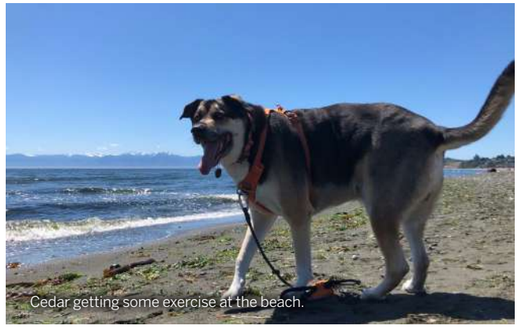
Such is the case with Lance. Lance, an adult male cat, presented with lack of grooming, sedentary behaviour, generally unhappy demeanour, and chronic severe obesity, with a history of previous failed weight-loss attempts. The internal medicine team diagnosed him with pancreatitis, as well as osteoarthritis in his elbows, hips, and stifles.

Our first priority was pain control, which began in the form of buprenorphine. After a week and one laser treatment, he jumped up on the desk and began grooming himself again, right in the middle of his owner's Zoom meeting.

We consulted with the veterinary team at Purina, who suggested a weight-loss plan based on their OM (overweight management) formula with salmon. Their suggested caloric intake was 180 kcal/day, which Lance handled well until he started to exercise more often. At that point, we increased it to 240 kcal/day. In addition, he was on joint supplements as part of a multi-modal approach to reduce pain and inflammation associated with osteoarthritis. We used laser therapy to relax myofascial tension and trigger points associated with muscle disuse and atrophy.

Our rehab team created obstacle courses at the hospital, usually for wet food or with his carrier at the end of the run as a reward. At home, his owners played games with him, and he chased his catnip mouse around the house for exercise.

The improvement and weight loss of 2.88 kg over one year is astounding. His energy level significantly increased, as well as his quality of life. WCV


Cedar getting some exercise at the beach.

Month	Weight
July 2020	11.48 kg
August 2020	10.97 kg
September 2020	10.4 kg
November 2020	9.6 kg
February 2021	8.37 kg
July 2021	8.6 kg

Lance's weigh-ins.

[1] D. E. Linder and V. J. Parker, "Dietary Aspects of Weight Management in Cats and Dogs," *Veterinary Clinics of North America—Small Animal Practice* 46, no. 6 (2016).

To save space, the references for this article are made available on the Chapter's website at www.canadianveterinarians.net/sbcv/west-coast-veterinarian-magazine.

TIPS FOR OWNERS

The following is a list of suggestions you can give to owners. Remember to be kind when dealing with owners. They can have shame associated with their pet's weight gain and feel guilt about not meeting goals/targets. Creating a system that they can continue working within and making them feel supported is of the utmost importance.

1. Use a treat jar to hold all of the food and treats for the entire day. Measure it out with a level measuring cup and make sure that treats make up less than 10 per cent of the entire caloric value. Once the jar is empty, the animal is out of food; no extra treats or table scraps should be given. This is a great tip for households where multiple owners feed their pets.
2. Make sure the entire household is on the same page about your animal's health and willing to participate.
3. Use water to soak the kibble and increase water consumption. You can also add extra water dishes around the house, especially for our feline patients.
4. Use treat puzzles, play games, or perform training or home exercises with the pet's food as a reward.

Vancouver Animal Emergency & Referral Centre

2303 Alberta Street
Vancouver, BC V5Y 4A7

604-879-3737

CARDIOLOGY SERVICE

VCA Canada Vancouver Animal Emergency & Referral Centre is excited to announce the launch of our new cardiology service on August 1, 2022. Led by board-certified cardiologist Dr. Flávia Giacomazzi, this new service will provide specialist support for all medical cardiovascular and cardiopulmonary referrals from our central Vancouver hospital.

CARDIOLOGY DEPARTMENT SERVICES:

- Cardiac troponin I
- Digoxin levels
- 12-Lead electronic electrocardiogram (ECG)
- 24-hour (ambulatory) Holter monitor
- Doppler Manometry and Oscillometric Blood Pressure Evaluation
- Thoracic radiographs
- Epic 5 Phillips cardiac ultrasound machine for transthoracic 2D, M-mode, color and spectral Doppler, and tissue Doppler evaluation, in addition to transesophageal echocardiography
- Diagnosis of both congenital and acquired heart diseases, as well as arrhythmias
- Pre anesthetic cardiovascular evaluation
- Electrical cardioversion of atrial fibrillation
- Pericardiocentesis
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Flávia Giacomazzi DVM, DACVIM

Dr. Flávia Giacomazzi received her DVM from the University of Brasília, Brazil, in 2006. After practicing as an equine ambulatory veterinarian, she decided to pursue and specialize in cardiology. Dr. Giacomazzi completed a small animal rotating internship at the University of Wisconsin, which was followed by a cardiology research internship at the same institution. She, then, completed her cardiology residency at Cornell University in 2017 and headed to Milan, Italy in 2018 for an electrophysiology fellowship at Clinica Veterinaria Malpensa. Dr. Giacomazzi became a diplomate of the American College of Veterinary Internal Medicine, specialty of Cardiology in 2018. Most recently, she has been working as an assistant (clinical) professor of cardiology at Oregon State University. Dr. Giacomazzi's main interests involve the diagnosis and medical management of complex arrhythmias, as well as short and long term management of congestive heart failure. Dr. Giacomazzi is passionate about working with both pet owners and primary veterinarians to provide individualized treatment and, consequently, best quality of life for her patients.

INVOLUNTARY URINE LEAKAGE DURING SLEEP:

IDENTIFYING A NEW, TREATABLE CAUSE OF URINARY INCONTINENCE IN DOGS

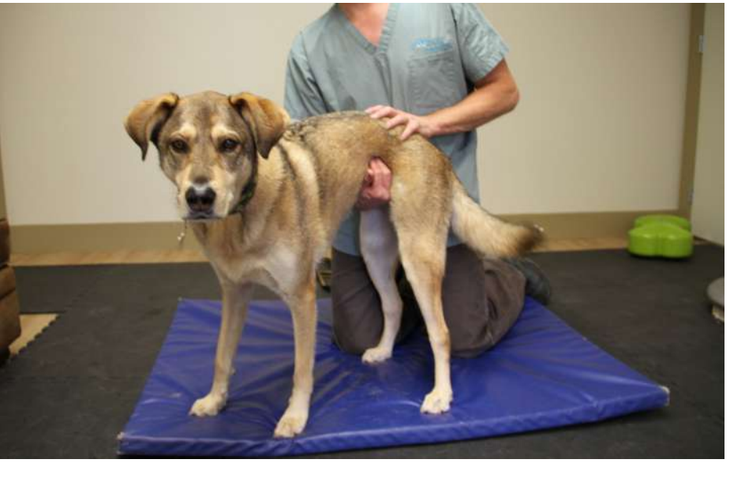
BY DAVID LANE, DVM, DACVSMR

Urinary incontinence (UI) in dogs is a commonly reported complaint. It can be divided into the categories of congenital versus acquired and neurogenic versus non-neurogenic. Urethral sphincter mechanism incompetency (USMI) is the most common cause of acquired non-neurogenic UI in dogs, affecting 3 to 5 per cent of spayed females and 1 per cent of intact females, intact males, or neutered males. It most commonly presents as involuntary urine leakage during sleep.

The causes of USMI are multifactorial, incompletely understood, and appear to differ between females and males. Being a spayed female and breed predilection are the most widely recognized risk factors, but other known risk factors include obesity, osteoarthritis, increased age, increased body weight, having a docked tail, and difficulty in assuming a normal crouching posture.

Treatment of USMI usually consists of chronic pharmaceutic prescriptions, usually either phenylpropanolamine or diethylstilbestrol, with 75 to 90 per cent of females responding to treatment, while only 40 to 50 per cent of males respond. For those patients refractory to pharmaceutic intervention, there are multiple surgical options. Surgical success rates approaching 80 per cent have been reported, but with concerns that the benefits may only be temporary in many patients.

In human medicine, back pain is broadly divided into two categories: mechanical and non-specific. Mechanical back pain has a specific cause readily identifiable on imaging, including infection, tumour, osteoporosis, fracture, structural deformity, inflammatory disorder, radicular syndrome, or cauda equina syndrome. Non-specific back pain (NSBP), a far more common condition affecting up to 84 per cent of people during their lifetime, does not have specific imaging findings. MRI results may reveal no abnormalities, or perhaps only mild degenerative changes—changes that frequently occur in non-symptomatic patients as well. Yet, despite the lack of significant imaging findings, the human patient is clearly experiencing pain. Potential causes of NSBP include discogenic pain from degenerated but non-compressive intervertebral discs, meningeal pain from tension on dural structures, root signature pain of spinal nerves secondary to muscular compression, dorsal longitudinal ligament or ligament flavum pain, vertebral endplate pain, osteoarthrosis of the articular facets or sacroiliac joints, myofascial trigger points, or ischemic pain from compressed blood vessels.



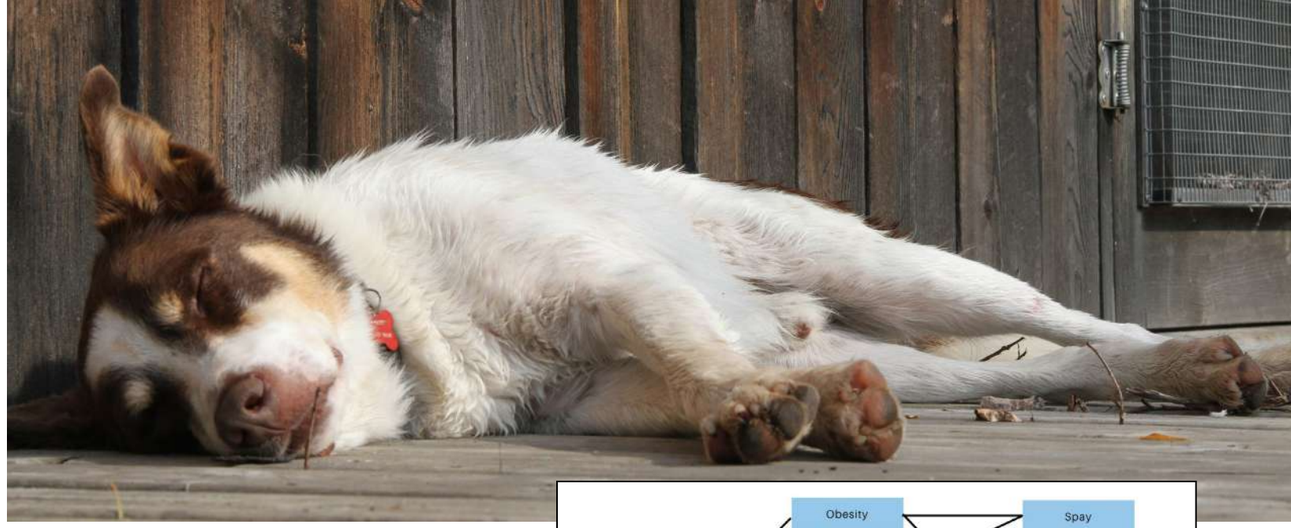
EDITOR'S NOTE

This article documents Dr. David Lane's retrospective study of his patients who he had been treating for presenting back pain and who had concurrent urinary incontinence (UI) while sleeping. There are multiple human papers showing a correlation between lower back pain and UI, with some documenting a resolution of the UI once the back pain was treated. Dr. David Lane's paper (linked below) is the first veterinary paper to document such a proposed clinical response to treatment with CAMT/laser therapy. One other veterinary researcher found a correlation between the existence of urethral sphincter mechanism incompetency and reduced mobility of the third to fifth lumbar vertebrae.[1] Readers are cautioned not to draw the conclusion that they should prescribe NSAIDS to a dog with UI that is not responsive to traditional medications without clear evidence of back pain or other conditions that warrant the use of NSAIDS, as serious medical consequences are possible. There is no evidence that NSAIDs are effective in resolving UI.

In humans, treatment of NSBP includes prescription medication, manual therapy, stabilization exercises, and other specific therapeutic exercises. Other NSBP treatments include photobiomodulation (laser) therapy and acupuncture. All of these treatments should be coupled with an appropriate rehabilitation and therapeutic exercise program. Aside from chronic pharmaceutic intervention, strength training combined with exercise is the only effective long-term treatment for NSBP in people.

Manual therapy refers to "hands on" techniques for resolving musculoskeletal pain, including mobilizations (a technique favoured by physiotherapists), manipulations (a technique favoured by chiropractors), and massage. Manual therapy techniques are effective, but as a sole modality they only impart a short-term benefit.

Laser therapy is the application of coherent and collimated infrared light into affected tissue.



ALL IMAGES COURTESY DAVID LANE

Absorbed photons trigger multiple biochemical mechanisms, resulting both an anti-inflammatory benefit and reduced hypoxia within myofascial trigger points (MFTPs).

Acupuncture, the placement of needles into specific neuroanatomic locations, has been shown to stimulate the release of endogenous endorphins and other neurotransmitters to initiate descending pain inhibition and muscle relaxation via the spinal cord. Alternatively, needles can be placed directly into MFTPs; a technique known as either dry needling or intramuscular stimulation.

All of these above-mentioned techniques are applicable to dogs. Although research on this topic is lacking, combined acupuncture and manual therapy (CAMT) has been shown to improve short-term comfort and mobility in dogs, as has laser therapy. Therapeutic exercise research has been predominantly focused on the benefits for patients suffering from spinal dysfunction, but is thought to also be beneficial in resolving NSBP.

There are a number of risk factors for NSBP in dogs, including obesity, osteoarthritis, increased age, increased body weight, and having a docked tail. Dogs with advanced NSBP often experience difficulty assuming a normal crouching posture. The hypothesized crossover between the risk factors for both USMI and NSBP is notable (Figure 1).

A number of human back pain researchers have identified a link between lower back pain (LBP) and UI in people, with some researchers reporting that once the LBP has been resolved using the aforementioned techniques, the UI symptoms also resolve.

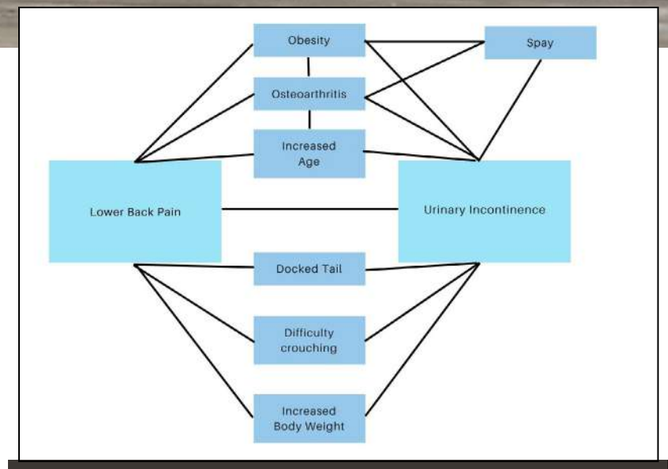
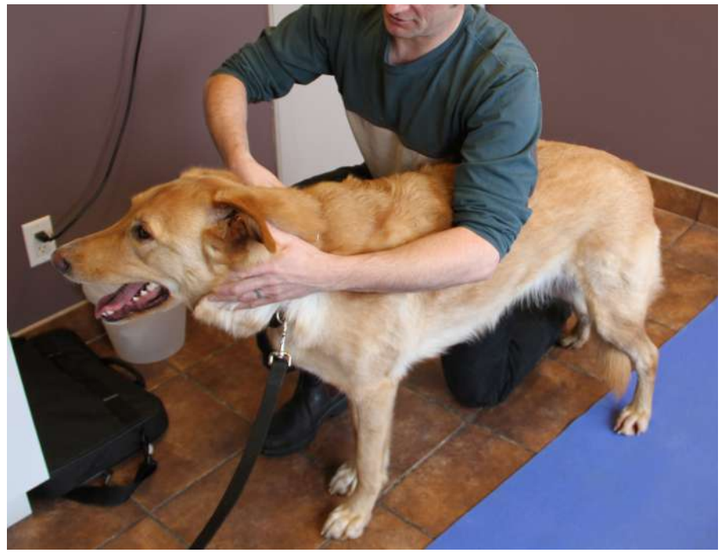


FIGURE 1: Urethral sphincter mechanism incompetency is correlated with non-specific back pain.

This raises the question: is there a relationship between NSBP and USMI in dogs, the same way there is between LBP and UI in people? In an attempt to answer this question, a very helpful statistician and I reviewed the medical records at Points East West Veterinary Services for a six-year period, identifying patients with a known history of frequent UI while sleeping who had also been treated for back pain. We then recorded whether the patient experienced an increase, decrease, or no change in either the frequency or volume of UI episodes following treatment and published our findings. For a complete description of the methodology and research findings, please download the full paper here: www.openveterinaryjournal.com/OVJ-2021-11-212%20D.M.%20Lane%20and%20S.A.%20Hill.pdf.

After the application of exclusion criteria, 39 patients qualified for the study. Within eight days following a second treatment for NSBP using CAMT mostly in combination with laser therapy, 74 per cent of owners reported a decrease

"OTHER KNOWN RISK FACTORS INCLUDE OBESITY, OSTEOARTHRITIS, INCREASED AGE, INCREASED BODY WEIGHT, HAVING A DOCKED TAIL, AND DIFFICULTY IN ASSUMING A NORMAL CROUCHING POSTURE."



in the frequency of UI episodes, 23 per cent reported no change, and 3 per cent were unable to determine whether a change had occurred. Similarly, 69 per cent of owners reported a decrease in the volume leaked, 23 per cent reported no change in urine volume leaked, one owner (3 per cent) reported an increase in urine volume leaked, and the remaining 5 per cent were unable to make a determination.

Some patients (32 per cent) experienced a partial response, meaning that the frequency and/or volume of urine leaked was reduced, but still occurred at least once a month. Others (45 per cent) experienced a complete response, meaning that episodes of USMI occurred less frequently than once a month. Those who experienced a complete response generally responded for several months before symptoms recurred, but some (18 per cent of patients overall) responded for more than a year, with several owners reporting a complete response for the remainder of the dog's natural life. The number of dogs responding for more than a year may potentially be higher than 18 per cent, as follow-up assessments for more than a year following treatment were only available for 42 per cent of patients.

In rough numbers, when summarizing these findings for clients, I report that one-quarter of treated patients do not respond, with just under one-third of dogs partially responding, one-quarter completely responding but relapsing within a year, and one-fifth of patients completely responding for more than a year.

The analysis of the data from this study suggests that there may be a relationship between NSBP and USMI in dogs, the same way there is between LBP and UI in people. Further research is needed, including a double-blinded approach to confirm these proposed correlations and to illuminate whether NSBP is a risk factor, or actually a cause of USMI, and if it is a cause, what the physiologic mechanism is that links the two.

A proposed corollary of these findings is that for a certain number of patients, leaking urine at night may actually be a symptom of pain, and should be treated as such. This means that in addition to a regular medical workup (urinalysis, bloodwork, etc.), careful attention should be paid to whether symptoms of back pain are found on physical examination.

To identify pain, palpate the epaxial muscles adjacent to the dorsal midline along the entire spine, gently probing and rolling them under the pads of your fingers, firmly enough to dent the musculature, but not so firmly that it would cause pain in a healthy patient—practice on your own musculature if you are unsure what that pressure threshold feels like. Also palpate the iliocostalis muscles (at the three and nine o'clock position between the ribs and pelvis), the quadratus lumborum (four and eight o'clock),

"IN ROUGH NUMBERS . . . I REPORT THAT ONE-QUARTER OF TREATED PATIENTS DO NOT RESPOND, WITH JUST UNDER ONE-THIRD OF DOGS PARTIALLY RESPONDING, ONE-QUARTER COMPLETELY RESPONDING BUT RELAPSING WITHIN A YEAR, AND ONE-FIFTH OF PATIENTS COMPLETELY RESPONDING FOR MORE THAN A YEAR."

and the psoas major (five and seven o'clock) muscles.

While palpating, look for evidence of pain, such as sudden nervous glances, dropping away from your fingers, muscle flinching, skin twitching, etc. If your patient yips in pain, then that is a signal that the palpation is too firm, and a lighter touch is needed.

Next, palpate for reduced flexibility in the lumbar spine. In humans, it is recognized that hypomobility of the lower back is linked to UI, even if there is no pain reported. It takes some practice to discern normal vertebral mobility, but it is a skill worth acquiring. Test each lumbar vertebra, as well as the sacrum and sacroiliac joints for a normal range of motion, dorsoventrally as well as laterally.

Video tutorials of these techniques can be found at www.canadianveterinarians.net/lane-video1-mobility-palpation and www.canadianveterinarians.net/lane-video2-muscle-palpation-normal-dog.

If evidence of pain or reduced lumbopelvic mobility exists, then consider recommending treatment of those symptoms using CAMT possibly combined with laser therapy as part of the therapeutic plan. In the worst-case scenario, even if the treatment for back pain doesn't help with the USMI symptoms, it will likely improve patient comfort.

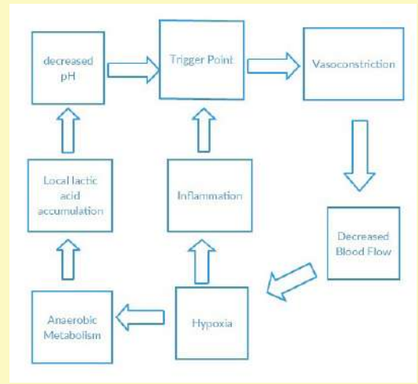
Our research into this topic is ongoing; we are still collecting data on the patients we treat using standardized forms that should fill the data holes that limited our statistical analysis in the original paper. We also have reason to believe that treatment of NSBP may help with other urinary symptoms, including when owners report that once their dog starts urinating, they "have difficulty stopping and appear distressed." Also, it may benefit patients who aren't urinating in their sleep but are voiding urine while rushing to the door after first waking up. WCV

VIDEO TUTORIALS OF THESE TECHNIQUES CAN BE FOUND AT
www.canadianveterinarians.net/lane-video1-mobility-palpation
AND
www.canadianveterinarians.net/lane-video2-muscle-palpation-normal-dog.

[1] T. R. Thude. "Chiropractic Abnormalities of the Lumbar Spine Significantly Associated with Urinary Incontinence and Retention in Dogs: Chiropractic Associated with Incontinence." *Journal of Small Animal Practice* 56 (2015): 693–697. doi: 10.1111/jsap.12420.

THERAPIES FOR MYOFASCIAL TRIGGER POINTS

MFTPs are focal regions of hyper-irritable, contracted muscle, usually caused by low-grade trauma or overexertion. Vasoconstriction occurs within MFTPs, cause a focal hypoxia, resulting in inflammation, which then triggers further contraction, thus causing more vasoconstriction in a self-perpetuating loop. Furthermore, ongoing muscle contraction in a hypoxic environment generates the normal metabolites of anaerobic exercise, including lactic acid. Such metabolites lower the local pH, causing more pain and vasoconstriction, thus worsening the hypoxia (see below).



Myofascial trigger points persist in a self-perpetuating loop.

To break free of these self-perpetuating loops, an adequate blood supply needs to be re-established to normalize the pH, remove inflammatory metabolites, and provide adequate oxygen. Dry needling is one technique for achieving this goal; laser therapy is another.

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ASSESSING THE RISK:
ANTINEOPLASTIC DRUGS IN VETERINARY PRACTICES

BY FIONA SENYK, MSc, AND HUGH DAVIES, PhD, CIH

Treatment for cancer in companion animals increasingly includes the use of antineoplastic (chemotherapeutic) drugs. While these drugs are a recognized occupational hazard in human health care settings, less is known about the applications, risks, and safety precautions regarding antineoplastic drug handling practices across different veterinary care settings.

Researchers at UBC recently completed a study (supported by funds from WorkSafeBC) that looked at furthering the understanding of antineoplastic drug use and the potential for occupational exposure in veterinary practices. The study was made up of two parts. First, we administered an online survey to characterize the use of antineoplastics, including drug preparation and administration practices, training and guidelines, and personal protective equipment. Second, we conducted surface-wipe sampling to quantify the contamination of antineoplastic drugs on surfaces in clinics. We compared clinics in British Columbia to clinics in the United States.

OVERALL FINDINGS

The survey was completed by 80 participants in British Columbia (10 per cent response rate) and Minnesota (6 per cent response rate). Twenty-four per cent of respondents reported that their clinic administered antineoplastic drugs. The majority of the responding clinics were small, with fewer than 10 full-time staff. Of those that did *not* administer antineoplastic drugs, 82 per cent referred animals to other practices, 38 per cent reported that they did not administer for safety reasons, and 34 per cent did not administer because of lack of training and/or knowledge.

Of those that did administer antineoplastic drugs, only 16 per cent used a special room for drug preparation and a similar number had use of a biosafety cabinet. Only 6 per cent of respondents said they had received formal training and only 26 per cent followed any formal antineoplastic drug handling guidelines. Most, however, did use needle-free devices (such as spikes), Luer lock systems, and/or closed-system transfer devices, though this was not universal.

Use of personal protective equipment was mixed; about two-thirds of respondents wore gloves, but fewer used gloves specifically designed for use with hazardous drugs. Only about one-third of respondents wore protective clothing during drug preparation or administration.

In the second part of the study, we conducted surface-wipe sampling at seven veterinary clinics. The wipe sampling quantified the contamination on various surfaces, examined which drugs were found, and identified where they were located within veterinary settings. The UBC wipe sampling protocol tested for the presence of 11 different antineoplastic drugs, but of these, the clinics examined used only five drugs. At each clinic, we took up to 30 surface wipe samples from common surfaces, such as administration tables, pill vials, doorknobs, and locations on the floors where administration is often done.

In the clinics examined, only two drugs were found above the limit of detection: cyclophosphamide and gemcitabine. Five out of the seven clinics had at least one sample above the limit of detection.

Some of the more common places where detectable levels of contamination by drug residue was found included the floor at locations where antineoplastic drugs were prepared or administered, on tables where administrations and/or examinations were done, on waste bins in rooms where antineoplastic drugs were administered, and on surfaces where antineoplastic drugs were stored. The highest amount of contamination found was 0.97 ng/cm^2 (on a floor where antineoplastic drugs were administered). When compared to levels seen in human clinical settings, this is quite a low level of contamination. Some of the surfaces that were found to be contaminated were high-touch surfaces (including a keyboard and door handle), which illustrates the potential risk for human exposure and cross-contamination.

While this was a relatively small study, and levels of drug residues were observed to be low, their presence demonstrates the potential for accidental exposure via dermal contamination. The health effects of chronic exposure to low levels of mixtures of antineoplastic drugs are not well understood, and so veterinary practitioners preparing and administering hazardous drugs should take necessary steps to reduce exposure risk. Our findings suggest that improvements can be made around antineoplastic drug handling in veterinary settings, specifically in the following areas:

- Preparation and administration protocols
- Training and education for staff involved in preparing, handling, and administering antineoplastics
- Spill cleanup and waste handling
- Personal protective equipment use
- Contamination surveillance

FURTHER INFORMATION

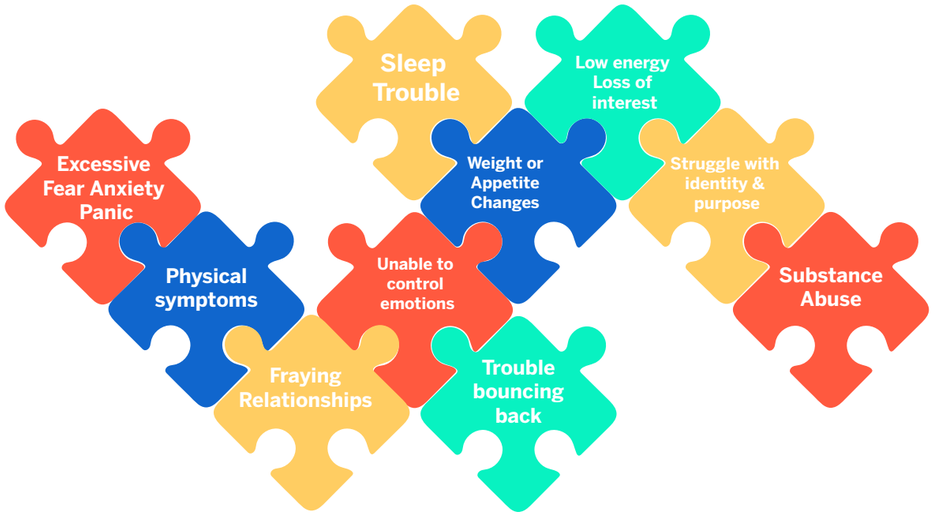
As recognition for participants' time and effort in the survey, we made a donation for each participating clinic to local animal charities, reaching a total of $1,800. Thank you to all participating veterinarians and their staff.

For questions about the survey or research project, please contact Dr. Hugh Davies at hugh.davies@ubc.ca. WCV

PHOTO BY VADIM KAIPOV/UNSPLASH.COM

FROM CRISIS TO EXCELLING:
EXPANDING OUR DEFINITION OF HEALTH

BY ELAINE KLEMMENSEN, DVM, CEC



Warning signs of flagging mental health.

Let me begin with a disclaimer. I am a leadership coach, a cultural consultant, and a veterinarian. I am not a psychologist, psychiatrist, counsellor, or social worker, nor do I claim any expertise in the arena of well-being or mental health for veterinary professionals. As one who cares deeply about the well-being of the humans behind our hospital doors, I offer my compassion and encouragement. Reach out and seek help if you are struggling. Please know that you are not alone. Know that you matter and know that there is help available. I encourage you to explore the resources offered in the supplementary material for this issue and take the first step toward improving your well-being.

I believe deeply in the power our stories hold. The power that comes from owning and understanding our story and the power our story has to make others feel less alone. In the winter of 2015, I found myself struggling with a deep sense of apathy and exhaustion. I felt like a rubber band that had lost its elasticity—stretched to the point of snapping without the ability to bounce back. Work started to feel like a deep river with a strong current that I needed to cross. If I could just focus on the far shore and swim a little harder, I would get to the other side. I told myself I needed to keep swimming. I had to be the leader my team needed, the veterinarian my clients needed, the mom my kids needed, and the partner my husband needed. Every day, I stepped into my resolve, jumped back into the river, and struggled against the current. Relying on sheer will and stubbornness to drag myself, along with my perfectionism and rescuer mindset, to the other side. Looking back, I am surprised I took so long to hit the metaphorical wall. Until recently, I refused to call it burnout. Me, burnt out? No way! I am tenacious, resilient, and tough. Trapped by my own mental models and limiting beliefs, I called it exhaustion and said, "I just need a change."

I've spent the last three years unravelling what led up to hitting that wall. It would be a lie to say it has been easy or tidily resolved. It has been a messy, humbling, and at times painful process. I try to find some self-compassion and humour as I remind myself how fascinating it is to discover what emerges when I shine a light into the dark places in my psyche. I have learned that when exposed to the light, those dark places start to lose the power they hold over you. Responsibility, achieving, perfection, and the relentless way I pushed myself were coping mechanisms I developed to manage anxiety and mask my deep sense of unworthiness. These feelings stemmed from my childhood

"I FELT LIKE A RUBBER BAND THAT HAD LOST ITS ELASTICITY—STRETCHED TO THE POINT OF SNAPPING WITHOUT THE ABILITY TO BOUNCE BACK."

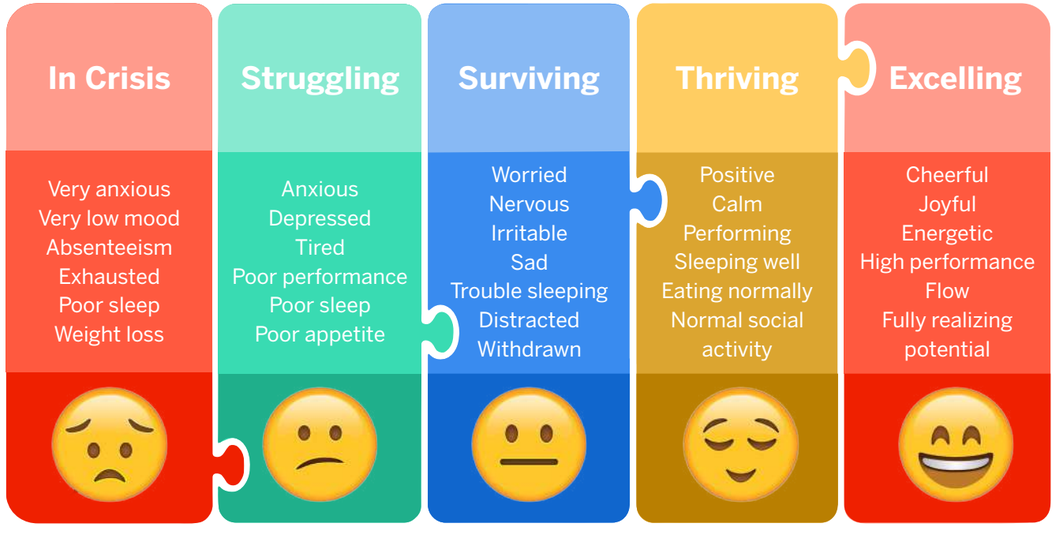
and followed me into middle age, and my coping behaviours, while unhealthy, made me feel in control, needed, and worthy.

Through this process, I would like to think I have developed a new awareness of what it means to be human. Every single one of us is imperfect, and we're all struggling with our own fears and limiting beliefs. I have come to think of mental health as a spectrum or continuum (see the well-being continuum below). We are each surfing our own precarious wave of mental well-being—one rogue wave away from slipping off our surfboard. How quickly or easily we find our way back, to ride the next wave, depends on our experience, the weather, the ocean currents, our surfing buddies, and what lies out of sight beneath the blue water.

We need to shift our thinking about mental health to see it as a dynamic process rather than a static one. Being mentally healthy is not simply the absence of illness, but a broader concept of well-being that applies to all of us. The World Health Organization defines mental health as "a state of well-being in which the individual realizes [their] own abilities, can cope with the normal stresses of life, can work productively, and is able to make a contribution to [their] community." Like happiness, thriving and excelling are not places to arrive but states of being we find as we do the work. There are times in our lives where each one of us needs a little help to work productively and contribute to our community. Broadening our definition of health to encompass physical, social (community), spiritual, and mental well-being helps destigmatize mental illness and makes it easier to ask for help.

To describe the last two years as challenging is an understatement. Workforce shortages, increased demand for our services, and the uncertainty and anxiety arising from a global pandemic are enough to push anyone into a mental health crisis. So how can you tell if you need to up your self-care game or reach out for help? If your symptoms are affecting the quality of your relationships, enjoyment of your favourite activities, or your ability to cope, it may be time to seek extra help. If you are having thoughts of harming yourself or others, or you are having thoughts of suicide, please seek help immediately, even if you think you are unlikely to act on them. Signs of declining mental health can sneak up on us and be challenging to recognize. The following are 10 signs, symptoms, and signals that you or a loved one may need some mental health support.

1. Trouble sleeping
2. Changes in appetite and/or weight
3. Trouble controlling your emotions (rapid or uncharacteristic mood swings)
4. Signs of excessive fear or anxiety (panic attacks)



The well-being continuum.

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5. Physical symptoms of stress (headaches, gastrointestinal distress, muscle tension)
6. Fraying relationships
7. Loss of interest and low energy (feelings of hopelessness)
8. Over-reliance on alcohol or other substances to cope
9. Struggles with identity and purpose
10. Inability to bounce back from minor setbacks

The Canadian Mental Health Association estimates that in any given year, one in five Canadians will experience a mental health problem or illness. Still, it takes courage to reach out and ask for help. Listening to a podcast with the amazing Esther Perel, I was struck by her reflection that North Americans are culturally conditioned for independence. When faced with a problem, most of us immediately ask, "How can I fix this problem?" Growing up in Belgium as the daughter of concentration camp survivors, Esther was conditioned to ask, "Who can help me with this problem?" She wonders, "What might emerge if we flipped the script on our tightly held value of independence?" Many of us worry that asking for help means admitting something is wrong or we are somehow defective. We fear being judged by others. Or perhaps we don't know where to turn for help. Whether it is joining a gym and stepping on a treadmill or reaching out to a counsellor, making a positive change takes courage. Similar to building a supportive team to meet your fitness goals, consider the following steps to help build your mental well-being team. You don't need to do it alone. Talk with supportive friends, colleagues, or family members. Share your feelings with them and ask them to be part of your team.

1. Enlist the help of your family doctor. They are a great resource for professionals in your area.
2. Use resources provided by your employer or veterinary association (please see the supplementary material for this issue).
3. Connect with others who have had personal experience with mental health challenges and learn more about their recovery journey.
4. Educate yourself. Learn more about well-being and mental health by reading, listening to podcasts, and attending webinars or lectures by experts in the field.
5. Call a helpline. Find support from anonymous trained professionals 24 hours a day.

As I work on my own well-being, I want to share that I don't believe I will one day arrive at "excelling" and the work will be finished. The surfboard is a slippery surface. Some days are epic and some days I can't catch a single wave. It takes practice and commitment to shift the needle in a positive direction. By embracing a holistic view of well-being that encompasses body, mind, and spirit, we all stand to improve our mental health. As you embark on this journey, be as patient and as kind with yourself as you would be to a good friend. Don't forget to celebrate the wins along the way and remember that together we are stronger. Take care of each other and take care of yourself. WCV

To save space, supplementary materials for this article are made available on the Chapter's website at www.canadianveterinarians.net/sbcv/west-coast-veterinarian-magazine.

CUT OUT THIS PAGE IF YOU WISH TO SAVE IT.

BY SCOTT NICOLL, BA, MA, LLB, AND GURINDER CHEEMA, BA, LLB

In my previous two columns, I dealt with COVID-19 vaccine status policies and the requirement to implement COVID-19 safety plans. This column makes a small shift in direction—to the "interweb" as my kids refer to it. Our society has gone online. People no longer use the Yellow Pages, for those who can recall what those were. They now look at Google reviews, Yelp, and industry-specific review sites. Reviews of professional services are influential determinants for members of the public trying to determine which professional they should use. One online conversion rate optimization company, Invesp, estimates that 90 per cent of consumers now look at online reviews before choosing a business to provide a service and 88 per cent of those who do trust those reviews as much as they trust the recommendation of a friend.[1] The same company provides an interesting infographic[2] about the importance of online reviews of your business and whether they matter or not. The essential conclusion is that yes, they matter. You should be aware of them, and you should take them seriously.

Favourable online reviews can obviously help businesses establish a strong reputation. Their online visibility can assist in drawing people to your clinic. Negative reviews, however, can push clients away from your clinic to a competitor with better online reviews. Positive reviews are easy, of course. They are often copied and redistributed by the business about whom they are written. Negative reviews are the more difficult animal, and it is this type of review that our column will discuss in this issue. As a professional, you need to understand your options when dealing with negative online reviews. You need to know what the most effective course of action will be in your situation. In some cases, an online review of may rise to the level of defamation. You need to know the hallmarks of defamation and what your options are when it occurs.

This column will focus on the elements of defamation and provide examples of instances in which online reviews have become the subject of an action for defamation. You will see that while suing the writer of a defamatory online review is one option, it is not the only option, and it may not even be the best option in your circumstance.

THE LAW OF DEFAMATION

Although the Canadian Charter of Rights and Freedoms guarantees the fundamental freedom of thought, belief, opinion, and expression, including freedom of the press and other media of communication, this right is not absolute. Defamation refers to causing harm to another person's reputation by making a false written or oral statement about that person to a third party. Slander is oral defamation, and libel is non-transitory defamation, which includes online reviews. Defamatory online reviews are libel.

Three elements must be met to prove that a reviewer has defamed you. On first impression the negative review must:

1. Be defamatory in the sense that the words are capable of lowering your reputation in the eyes of a reasonable person
2. Refer to you or your business
3. Be published to at least one other person[3]

Is the review defamatory?

A review is only defamatory if it attacks the integrity, competence, or other reputational value of you or your business.[4] In some cases, the literal words of the review might be defamatory. In other cases, the literal words of the review may not defamatory, but the overall impression left by the words is. Calling someone a thief, for example, is likely defamatory given the literal word usage. On the other hand, stating that a doctor altered reports and changed a medical professional's decision concerning the impairment of a patient is not defamatory when you consider only the literal words used. The same statement becomes defamatory when you consider the impression of professional misconduct that it gives rise to.[5]

Does the review refer to your business?

In the case of online reviews, this element is typically easy to meet. If you are suing for defamation, you must prove that the review refers to your business. Reviews are usually posted with the name of a business, otherwise readers will not know to whom the review relates. It usually is clear which company or professional to whom the review refers.

Is the review published to at least one other person?

Online reviews are published to websites that are accessible and used by many people. Thus, the nature of online reviews satisfies this element.

CASES INVOLVING DEFAMATION AND ONLINE REVIEWS

In one case,[6] a blogger posted negative reviews about the plastic surgeon who performed her breast augmentation surgery. The blogger posted the negative review on her personal website and on Google Reviews. The surgeon asked the blogger to take down the review, but the blogger refused. The blogger's review said:

"A REVIEW IS ONLY DEFAMATORY IF IT ATTACKS THE INTEGRITY, COMPETENCE, OR OTHER REPUTATIONAL VALUE OF YOU OR YOUR BUSINESS."

. . . Plastic Surgeon Kelowna

My experience with this particular surgeon was an anxiety filled nightmare. Not only did I leave the operating table worse than when I initially laid down for my procedure but [the surgeon] & his receptionist made correcting the issues seem unimportant & unpredictable.

I knew something wasn't right immediately from the bottom half of my breast being almost entirely black & blue. He shrugged it off, said it was fine. I took his word for it even though it didn't feel or look fine.

Fast forward to three months post op—low & behold the itty bitty boob I traded in, for a deformed downward breast that was well over an inch higher than the other. Aka torpedo tit. [The surgeon] told me nothing could be done until it was healed leaving me with a grotesque body part for six months.

[The surgeon] publicly stated—gotta love the lack of privacy & breach of doctor/patient confidentiality—how my condition was "utterly complex." Yet never once during my appointments did he mention the "complexity" of my chest. On the contrary, he boasted how my chest wall would give me *more* cleavage, not only selling me on the idea of breast augmentation but encouraging it telling me how often he's done the surgery for my "particular case."

To correct his mistake in the first place the muscle needed to be released more on one side which he failed to do in my initial surgery. Resulting in my breast having next to no bottom pole.

(A small but vastly important step that turned a 4–6 week recovery time into 9 months.)

When I tried to make sense of this & asked if he had done just that during surgery all [the surgeon] said was "I think so," looking onto a measly couple lines of notes on the back piece of paper for questionable confirmation.

I did not feel good I let this surgeon cut me open.

I was scared to have [the surgeon] operate on me again. I requested a different surgeon in the office who I found to be so much more detailed & informative than [the original surgeon]. It was night & day difference. Notes were thorough as were consultations—opposed to my at most 5 minute consultation with [the original surgeon].

It was a lengthy, stressful battle to have a different surgeon correct his mistake without having to pay full price for another breast augmentation. At one point I wanted the implants completely taken out because I fully regretted the procedure he did on me. It was a hard, frustrating process in negotiating revision surgery & costs. [The original surgeon]'s mistake was more than I bargained for.

Call me picky . . . but would YOU be happy with these results?

You couldn't pay me to go back to go back him [sic].[7]

The court noted that:

"Online review platforms are not a *carte blanche* to say whatever one wishes without potential consequences. This case was brought to vindicate the plaintiff's reputation as a plastic surgeon in light of the posts."[8]

The court found that the blogger's statements were defamatory:

"Professionals may be defamed by comments that question or impugn their qualifications, knowledge, skill, capacity, or efficiency. Comments suggesting that a medical practitioner is incompetent, unqualified, or guilty of discreditable conduct in his or her profession are defamatory."[9]

The court also found that the blogger's review referred to the surgeon given that she referred to him by name. The court inferred that the blogger's review had been read by one other person given that the surgeon's executive assistant confirmed she had read the review, and given "the realities of 21st century communications and internet-based publications,"[10] among other things.

In a separate case,[11] the court concluded otherwise. A man hired a law firm to represent him to defend an impaired charge. The man was unsatisfied with the decision and asked the law firm to refund his legal fees. The law firm refused, so the man posted a review on the law firm's Google profile. The review stated:

"I spent nearly $2000 for [lawyer] to lose a case for me that they seemed they didnt [sic] put any effort into. Anywhere else would be moore [sic] helpful.worstest [sic] lawyer. would not recommend."[12]

The law firm claimed that the review was defamatory. The court disagreed. The court found that an ordinary person would not accept the review as being accurate. The court was not satisfied that the review would lower or even impact such a person's estimation of the law firm's reputation. The court noted that the review was clearly written by a disgruntled client, it was posted in the heat of the moment, and it was written in poor English and contained grammatical errors. The court further noted that the law firm signed up for Google Plus and, by doing so, invited online comment from its clients. Further, the review in question "lacked any semblance of credibility or polish"[13] and was unlikely to impact the law firm's reputation or business.

The court in this instance went further, however, and commented helpfully on online reviews and the reasonable expectations of professionals when it comes to online reviews, and particularly those professionals and businesses who participate in social media platforms:

"In this time when virtually everyone has instantaneous access to the internet, many use the internet to express their feelings without pause or reflection. Business people with Google Plus profiles or the like invite comments from customers. Surely no one can expect to receive all favourable reports. When choosing a lawyer or other professional or service provider, prospective customers reading such reviews would be naive to think that anyone or any business would receive all positive reports. As the adage goes, you can't please everyone all the time."[14]

YOU WISH TO SAVE IT. CUT OUT THIS PAGE IF

YOU WISH TO SAVE IT. CUT OUT THIS PAGE IF

DEALING WITH NEGATIVE REVIEWS—YOUR OPTIONS

The two instances above both involve the business electing to sue the disgruntled reviewer. While clients cannot leave reviews that are not true, the latter case above reinforces the point that businesses must also have realistic expectations and should not expect to remove all unfavourable reviews. While you may disagree with a particular online review, obviously not all negative online reviews will amount to defamation. Truth is a defence to defamation, which means that if the reviewer recites only facts that are true, regardless of how negative the review may be you will not succeed in suing for defamation. It is also the case that you may not want to sue for defamation every time you are defamed. There are any number of instances where the lawsuit for defamation has garnered much more public attention than the original statement that was seen by relatively few people. It is often the case that a well-worded and reasonable response presented in a calm and mature tone will go just as far to repair any damage that an intemperate tantrum of a review may have caused. You should consider such an option before opting to sue.

You may also want to consider reaching out to the reviewer. More and more businesses are making an effort to reach out to those who have left a negative review in an attempt to repair the cause of the original review. One negative experience may not have created an inflexible enemy of your business. The relationship may be quite salvageable. Negative reviews are often the product of a lack of effective communication. Positive communication with the individual may repair the relationship. Alternatively, if the relationship remains irretrievably lost, perhaps the exercise of reaching out is at least sufficient to get the reviewer to remove their negative review. The simple adage that you will not know until you try certainly applies in this case.

We also recommend to clients who are not successful with the reviewer directly, that they (or often we on their behalf) contact the website or online platform where an online negative review is hosted. The review may violate the website or platform's terms of service. If it does, you can request that the review be removed.

If the reviewer will not remove their negative review, you may choose to respond to the review with your version of events. Again, you should be careful to maintain a detached professionalism in your response. You must present as the more reasonable and, therefore, the more reliable of the two positions.

There is insufficient space here to explore all possible alternatives to litigation in these instances. If you find that you have exhausted less confrontational methods, however, you may sue in defamation to have a defamatory review removed from its online platform. You will not be surprised to hear that each case turns on its own facts in this area of law. This is not the type of lawsuit that you should attempt without the assistance of legal counsel. Suing for damages for defamation is not like suing on a debt in Small Claims Court. Should you determine that suing is your only option left, consult your lawyer and ask them if the review in question rises to defamation.

I will close this column with a note of caution. As we move ever closer to Mr. Zuckerberg's Metaverse, we become more and more dependent upon what happens in the online portion of our respective existences. At some point I began to consume my news from a webpage more than I did from a paper page. Virtually all recruiting is now done online, with little or no advertising for that done on non-electronic platforms. Information is much easier to access and there is much more of it for the taking. I am in my mid-fifties and as a member of that generation that can actually recall the widespread use of typewriters and carbon paper, I am tempted to downplay the significance of online reviews because of my own cynical assessment of the reliability of them. I am tempted to say that people do not trust amateur reviewers with no qualifications and no other particular reason to give their opinion weight. And I would be wrong. I would be wrong because I now realize that I do exactly that regularly. I read and I am influenced by online reviews, from professional and amateur reviewers alike. Online reviews matter to your reputation and they matter to your business. As professionals, our reputation is ultimately all we have. I can tell you that I guard mine jealously. You should also. WCV

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[1] https://www.invespcro.com
[2] https://www.invespcro.com/blog/the-importance-of-online-customer-reviews-infographic
[3] *Peterson v. Deck*, 2021 BCSC 1670 at para. 40.
[4] David A. Crerar, "Canada: An Overview of Business Defamation," November 22, 2011, online at: www.mondaq.com/canada/libel-defamation/154372/an-overview-of-business-defamation.
[5] *Bent v. Platnick*, 2020 SCC 23.
[6] *Peterson v. Deck*, 2021 BCSC 1670 at para. 40.
[7] *Peterson v. Deck*, 2021 BCSC 1670 at para 5.
[8] *Peterson v. Deck*, 2021 BCSC 1670 at para 34.
[9] *Peterson v. Deck*, 2021 BCSC 1670 at para 48.
[10] *Peterson v. Deck*, 2021 BCSC 1670 at para 54.
[11] *Acumen Law Corporation v. Nguyen*, 2018 BCSC 961.
[12] *Acumen Law Corporation v. Nguyen*, 2018 BCSC 961, para 3.
[13] *Acumen Law Corporation v. Nguyen*, 2018 BCSC 961, para 37.
[14] *Acumen Law Corporation v. Nguyen*, 2018 BCSC 961, para 34.

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FRIDAY NOVEMBER 4, 2022

6:00 p.m.–7:00 p.m. Telemedicine with Dr. Serge Chalhoub, DVM, DACVIM (SAIM)

Examinations without . . . examinations? Exploring the current legislation and state of telemedicine in Canada, attendees will learn what telemedicine and teletriage are and explore future considerations; with a strong BC flavour.

7:00 p.m.–9:00 p.m. Record Keeping with Dr. Linda Crews, DVM

101 tips and tricks for veterinarians and staff to capture both the REQUIRED and the EXPECTED information in the medical records. Good medical records improve both quality and continuity of patient care; assist efficiency, training, billing, and compliance; reduce errors and omissions; meet the required provincial regulatory requirements; and improve personal development to meet or exceed peer expectations.

Those wishing to attend remotely can still access the sessions and ask questions in real time. This hybrid event has something for everyone.

SATURDAY NOVEMBER 5, 2022

8:00 a.m.–11:30 a.m. Undetected Pain and Subsequent Behaviour Problems with Dr. Katherine Pankratz, DVM, DACVB

Various assessments and perspectives may be necessary to rule out pain as an underlying contributing factor to behavioural issues. Attendees will learn the breadth of differential diagnoses to consider for a patient with a behaviour presenting complaint or a behavioural change. For suspected pain, attendees will learn to determine factors that may influence the therapeutic plan and understand the various considerations that may encompass a treatment plan for pain.

1:00 p.m.–4:30 p.m. UTIs with Dr. Serge Chalhoub, DVM, DACVIM (SAIM)

Cats, kidneys, bladders: aliens from outer space? Through a case-based approach, attendees will examine feline chronic kidney disease with an emphasis on current thoughts on pathophysiology, early diagnosis, and new evidence-based treatments. Attendees will also learn about acute kidney injury and feline lower urinary tract disease with a focus on current knowledge and management of idiopathic cystitis.

5:30 p.m.–7:00 p.m.
Annual General Meeting of the SBCV

SUNDAY NOVEMBER 6, 2022

8:00 a.m.–11:30 a.m. Dermatology with Dr. Allison Foster, DVM, DACVD

"Ears, Nasal Planum, and Paws" features ear disease in dogs and cats with emphasis on how addressing these issues can contribute to overall success in long-term therapy. Treatment and management of chronic otitis externa with special emphasis on *Pseudomonas* otitis externa, with brief overview of otitis media and otitis interna, will also be discussed. Also a variety of diseases, including autoimmune and neoplastic conditions, which often mimic other conditions, cause dermatologic signs affecting the nasal planum, paw pads, or both. We will discuss some diseases that affect these sites including clinical presentation, diagnosis, prognosis, and treatment.

1:00 p.m.–4:30 p.m. Anaesthesia with Dr. Odette O, DVM, DACVAA

First benefit from an anaesthesia refresher including patient classification and preparation, commonly used medications, and current monitoring guidelines, with a sneak peek at anaesthesia and analgesia products for companion animals. Then learn about anaesthesia for patients with concurrent disease including renal disease, diabetes, cardiac disease, and brachycephalic syndrome.

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[1]2018 Pet Obesity Study. Association for *Pet Obesity Prevention*.