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SUMMER 2017

Vet Topics

IMPROVING THE QUALITY OF HEALTH CARE FOR YOUR BEST FRIENDS

Sookie's second chance

By Jeanette Neufeld

During the week before Christmas in December 2016, Shannon Hamilton and John Kunard's dog Sookie went missing from their acreage near Shellbrook, Sask. Things didn't look good for the two-year-old Great Pyrenees, especially when temperatures dipped below -30 degrees Celsius. The couple began checking with neighbours to see if anyone had found Sookie's body.

Then, on Christmas Eve, Hamilton and Kunard heard something thumping against their deck.

Sookie had come home – with a snare trap locked around her frozen front right paw.

"It was frozen solid, it just went 'thunk, thunk' when she walked. I knew for sure it would have to be an amputation," says Hamilton.

Kunard and Sookie were soon headed to the Western College of Veterinary Medicine (WCVM)'s Veterinary Medical Centre.

It was an agonizing day. Kunard stayed at the hospital until the emergency team stabilized Sookie. The next day, the family faced a difficult decision: remove Sookie's entire leg or take a chance on a partial amputation and a prosthetic limb — an option they'd never heard of before.

"I was so worried. That was my biggest fear. What if we do all of this and then she won't use the prosthetic?" says Hamilton.

Sookie's family was able to go ahead with the surgery and plan for a prosthetic limb — thanks to donations from the community and the WCVM's Good Samaritan Fund. This fund helps to pay medical costs for ownerless animals or for pets whose owners can't fully pay for medical care.

Sookie (left) at home with her owners John Kunard and Shannon Hamilton and brother Nanook.

Small animal surgeons amputated the dog's foot just below her lowest, distal joint. They then took Sookie's carpal pad – a small pad similar to the toe pads, located above the paw – and transferred the tissue to the bottom of her stump.

"Because her carpal pad was still alive, we could just move it down and make a nice stump for her in preparation for a prosthetic limb," says Dr. Jiaying Ng, a small animal surgical resident at the WCVM.

For the next month, the family made the 280-kilometre round trip to Saskatoon multiple times a week while Sookie's wounds healed, then Sookie began rehabilitation at the WCVM. The priority was to ensure that the dog would use her injured leg once the prosthetic arrived.

"It was kind of taking a shot in the dark to see whether Sookie would use the leg.

University of Saskatchewan | cahfpets.ca

CONTINUED: SOOKIE'S SECOND CHANCE

You can't really predict how each animal will adapt," says Ng, who oversaw the dog's case as she healed.

Clinicians in the WCVM's rehabilitation service helped Sookie get accustomed to using the injured limb by doing stretching exercises and massage and conducting laser therapy on her healing leg.

Sookie's family massaged and stretched the dog's leg, ensuring she was comfortable. They worked hard to encourage Sookie to extend her amputated leg so she would be ready for the prosthetic leg once it arrived.

"By the time her prosthetic came, she was already trying to use her limb to balance herself," says Dr. Kira Penney, clinical associate and certified canine rehabilitation therapist at the WCVM.

When Sookie's wound was nearly healed, Penney and a team of veterinary technologists and students created a cast that the Colorado-based company OrthoPets used to custom-build Sookie's new leg.

One big question still lingered — would the prosthetic even work?

When the leg finally arrived, a crowd gathered to watch the initial fitting. As usual, Sookie came around to greet each person in the room. She stood patiently as the team wrestled her new limb on for the first time.

And then, without any hesitation, Sookie took off – walking on her new leg as if it had always been there.

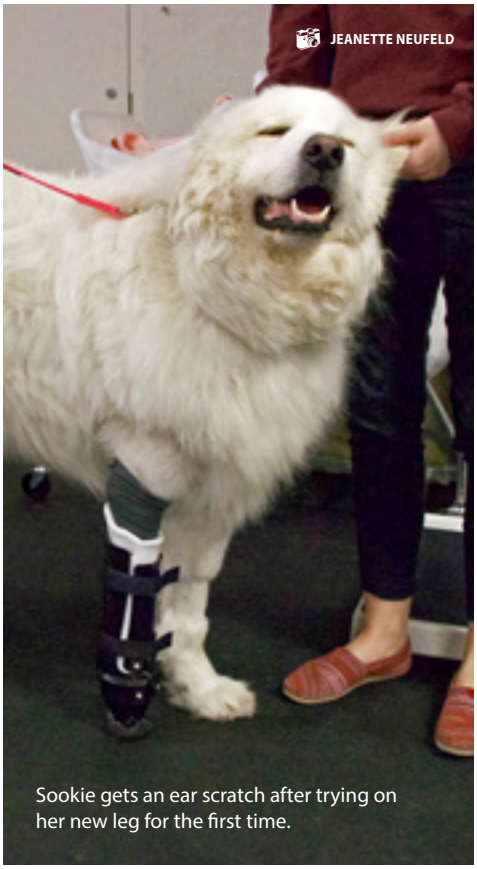
"The first time we put that prosthetic on, she just started walking like a champ," says Penney.

After the first fitting, Sookie started the slow process of growing used to her new leg, and in early May, Sookie's clinical team gave her the all-clear.

After months of visits to Saskatoon for rehabilitation, Sookie is ready to live the rest of her life as a well-loved pet alongside other animals at her home. While she won't go back to her duties as a guard dog, the experience has turned her into a patient and trusting house pet.

"I think her future looks as good as any dog. With this prosthetic, she can get anywhere she needs to be. It's really giving her the best quality of life, and I'm so happy she has that," says Kunard. "She manages well when it's off in the house, but we know that when this is on her, she's at her best."

JEANETTE NEUFELD



JEANETTE NEUFELD

Sookie gets an ear scratch after trying on her new leg for the first time.

Sookie with Dr. Kira Penney at the WCVM's pet rehabilitation centre.

Dr. Kira Penney works with a group of fourth-year veterinary students to evaluate Sookie's amputation.

PET REHABILITATION AT THE WCVM

By Lynne Gunville

The pet rehabilitation centre at the WCVM Veterinary Medical Centre offers rehabilitation services for animals after surgery as well as for animals that have conditions requiring medical management.

The rehabilitation specialists also help arthritic or geriatric patients to become more active, and they can assist healthy animals with fitness and weight management.

The rehabilitation team works with different small animals including cats, dogs, exotic animals and birds. The team includes:

- two full-time veterinarians with specialized rehabilitation training
- four registered veterinary technologists
- dedicated pre-veterinary volunteers

The clinicians perform an initial patient evaluation to identify specific areas of weakness that need to be improved. Based on the goals for the animal, they develop a treatment plan that works for the owner.

For some patients – often those that have had surgery – the plan requires that they stay in the clinic to receive intense daily therapy. Other patients may require weekly or even monthly appointments along with a regimen of exercises that can be done at home with their owners.

In addition to working with the animals as they use the underwater and land treadmills, the specialists can provide manual therapy, therapeutic ultrasound and laser treatments as well as neuro-muscular electrical stimulation. They also use a variety of exercise equipment that includes stairs, exercise boards and wobble boards.

Read the full stories at cahfpets.ca

SOPHIE'S PET PROJECTS

By Lynne Gunville

When Sophie Katarynych was growing up during the 1930s, her parents didn't have a lot of money, but they were always willing to lend a hand to others. Katarynych has lived her life following their example.

Over the years Katarynych had many opportunities to help people through her nursing and flight attendant careers, but she also resolved to improve the lives of animals, particularly dogs. After inheriting her mother's dachshund Fritz, Katarynych developed an affection for the breed, prompting her to rescue eight other dachshunds over the years.

Katarynych describes her puppies as her children and speaks of them all with great fondness: "Fritz was with me for about 12 or 14 years, and then came Cleo, Duchess, Isabel, Daisy, Fritzie, Megan and Vincent. Right now I have Chase. They're forever there, and they're just so faithful."

Katarynych first heard of the Western College of Veterinary Medicine (WCVM) when Cleo became ill and her Winnipeg veterinarian, Dr. Mervyn Madill, arranged an appointment at the WCVM. After Cleo's successful treatment, Katarynych offered to buy a piece of equipment for the WCVM's Small Animal Clinic.

"Maybe it was my nursing background, but I knew how they had helped Cleo, and it felt really good when I bought them an incubator," recalls Katarynych. "I felt very satisfied that I was doing something worthwhile, and it just took off from there."

As Katarynych made her annual donation to the WCVM, she particularly appreciated that she was able to direct her money to specific items or equipment. Over the years, she has purchased a long list of practical items for the WCVM — including a bronchial endoscope, an arthroscopic camera and an electrocardiograph machine.

Whenever one of her dachshunds needed specialized treatment, she returned to the WCVM Veterinary Medical Centre (VMC) and took note of its equipment needs. After Vincent was treated for a spinal problem that required rehabilitation services, Katarynych realized the significance of an underwater treadmill for rehabilitation, and she opted to purchase one for the VMC.

"In effect, she started the pet rehabilitation centre here because it was basically built around the underwater treadmill," says Dr. Romany Pinto, a clinical associate who is a certified canine rehabilitation practitioner and a certified veterinary acupuncturist. "The donation of the treadmill happened at the perfect time to get the rehabilitation program started."

Once Katarynych had a chance to tour the rehabilitation centre, she purchased more specialized equipment for the centre including a lift system, specialized flooring and a thermography machine.

"We wouldn't have had rehabilitation services without Sophie's donations really initiating the interest," says Pinto. "And a single piece of equipment can make a huge difference."

Searching for answers to sudden blindness in dogs

By Danica Lucyshyn

Danica Lucyshyn performs an eye exam on a dog. Submitted photo.

The challenge of living with a blind dog is something Twyla Budz knows all too well. Her dachshund, Max, was diagnosed with a condition called sudden acquired retinal degeneration syndrome (SARDS) in 2014 and lived with the condition until he passed away in 2016.

Budz recalls how living with Max after he became blind was "no different than a mom with a little baby." She had to learn to understand his different ways of communicating and help him adjust to his new reality.

SARDS is a condition that causes dogs to suddenly and permanently go blind because their retinas degenerate. Small breeds like dachshunds, miniature schnauzers and pugs are most often diagnosed, but any breed of any size can be affected. The exact cause of SARDS is unknown, and there is no treatment available.

My research supervisor, veterinary ophthalmologist Dr. Lynne Sandmeyer, has asked me to identify all of the dogs diagnosed with SARDS at the college's Veterinary Medical Centre over the past 20 years.

My goal is to gain a better understanding of SARDS by comparing as many affected dogs as possible. We want to help find out what causes the disease or even find something that could treat the condition and improve the quality of life for dogs living with SARDS.

A true diagnosis of SARDS requires an advanced test called an electroretinogram (ERG) that tests whether or not the retina is working properly. An ERG is only available at a referral centre like the VMC where ophthalmologists diagnose about one dog every month with this blinding condition.

However, the number of dogs affected by SARDS is likely much higher since not every dog affected with sudden blindness is referred to the WCVM for specialized testing.

SARDS-affected dogs can also show clinical signs of increased thirst, appetite and urination as well as weight gain. These signs are commonly seen with a different disease called hyperadrenocorticism (Cushing's disease).

Researchers are still trying to understand the relationship between SARDS and Cushing's disease. The clinical signs of increased thirst, urination and appetite can show up before, during or after blindness in SARDS patients — yet they often disappear over time.

A SARDS diagnosis is not something to be taken lightly. In addition to the troubling clinical signs, the permanent blindness associated with SARDS requires major adjustments for both dog and owner.

Similar to a blind person learning to use a cane and read braille, a blind dog must learn new commands. It also relies much more on smell and hearing to successfully navigate its environment. A blind dog requires more care and supervision than a seeing dog, and owners often find themselves in the position of being the seeing-eye-human for their blind dog.

"As long as you're patient and they know that you're always there for them … and you show them that there's nothing to fear, they live absolutely fine," says Budz.

Her greatest hope is that in 10 to 15 years, veterinarians will be able recognize the clinical signs of SARDS early enough to diagnose and treat the disease before affected dogs become blind.

Danica Lucyshyn of Saskatoon, Sask., is a fourth-year veterinary student who was part of the Western College of Veterinary Medicine's Undergraduate Summer Research and Leadership program in 2016. Danica's story is part of a series of stories written by WCVM summer research students.

More health news at: cahfpets.ca

VETERINARY SURGERY

LIFE-LONG CALLING

By Jeanette Neufeld

JEANETTE NEUFELD

Dr. Koji Aoki, 2017-18 CAHF Research Fellow, with his pit bull Sam

Like many veterinarians, Dr. Koji Aoki always knew what career path he wanted to follow.

However, unlike most other vets, he had two very important mentors throughout his entire life – his mother and father, who are both veterinarians in Fukuoka, Japan.

He grew up surrounded by pets – up to six Chihuahuas at a time – and Aoki's older brother also became a veterinarian.

Aoki graduated from Nihon University in Japan with a Bachelor of Veterinary Science in 2010.

During his preliminary veterinary training, he was drawn to surgery courses.

"Even before I became a vet, I wanted to be a surgeon," he says.

After working briefly in private practice in Japan, he completed one year as a research associate at University of California Davis and one year as a surgical fellow at Michigan State University. Next, he finished a small animal medicine and surgery internship at the University of Minnesota.

Aoki is now a small animal surgical resident at the Western College of Veterinary Medicine (WCVM) and was recently selected as the Companion Animal Health Fund Research Fellow for 2017-18.

Funding from this fellowship will assist him as he finishes a combined small animal surgery residency and Master of Veterinary Science degree program under the supervision of Dr. Cindy Shmon, WCVM small animal surgery professor and head of the college's Department of Small Animal Clinical Sciences. He will complete his residency in the summer of 2018.

As part of his fellowship, Aoki will also travel to the American College of Veterinary Surgeons' Surgery Summit in October 2017. He is hoping to present an abstract detailing his most recent research into the surgical techniques for assessing and treating damage to the stifle joint – the rear "knee" joint – in dogs.

Aoki hopes to focus next on a study evaluating the effectiveness of the Ehmer sling, a supportive bandage that helps dogs after surgery for traumatic hip dislocations.

His supervisors commend Aoki's attention to detail in his research as well as his skill in teaching and motivating students to succeed.

"In my time as his supervisor, I have been impressed by not only Dr. Aoki's performance but also his enthusiasm and dedication to his discipline, initiative, professionalism and strong sense of team," says Shmon.

The life of a veterinary surgical resident is a difficult one – the job is both physically and mentally demanding, with lots of long hours. There are many duties and a lot of stress involved in working and studying as a surgeon.

Aoki deals with the stress by running and is often accompanied by his pit bull Sam.

It's the satisfaction of fixing complex cases that motivates Aoki to pursue his specialization in surgery.

"Even though I'm tired, [it's worthwhile] if the patients get better and the clients appreciate the effort," he says.

It's this positive feedback from clients that motivates him, knowing that he's saving lives and making a difference in the future of many beloved pets.

Dr. Joe Rubin (third from right) and members of his research team. Submitted photo.

CAHF funding helps Rubin lab

CAHF funds support antimicrobial resistance research

By WCVM Today

Funding received from the Companion Animal Health Fund (CAHF) has become a cornerstone of support for Dr. Joe Rubin's research into antimicrobial resistance.

This research area has broad implications for both human and animal health. The rise of antimicrobial resistance – in which commonly-used drugs to treat bacterial infections no longer work – is influencing the way veterinarians and human doctors treat their patients.

Rubin, who graduated from WCVM in 2007, began his PhD research into the subject of antimicrobial resistance (AMR) the same year. During his program, he studied methicillin-resistant *Staphylococcus aureus* and the risk of transmission between dogs and people. Around the same time, Saskatoon-area veterinarians and researchers were seeing AMR more and more commonly in bacteria infecting companion animals.

It was the perfect opportunity for Rubin's PhD research to arise from these local outbreaks. "The question that I had was how common is methicillin resistance?" Rubin says, whose research work helped to establish a baseline for future *S. aureus* surveillance and resistance monitoring.

S. aureus is a gram-positive bacterium that is commonly found in people's noses and in the intestines or mucous membranes of dogs. Methicillin resistant *S. aureus* (MRSA) is resistant to an entire class of antibiotics known as beta-lactams – "some of the most important drugs that we have in both human and veterinary medicine."

While MRSA is always resistant to all beta-lactams, it's also often resistant to other classes of antimicrobial drugs. This multi-drug resistance means that the lack of treatment options is becoming a major problem, says Rubin.

The CAHF has provided ongoing funding for his work, beginning with two initial research grants for surveillance studies.

Using this funding, Rubin's research team collected bacterial isolates and created an archive of strains for their research. The team's initial findings helped to generate further questions as well as additional grant proposals that supported the team's next steps.

"[We're] trying to come up with some solutions or strategies for vets to better use antimicrobials and also for diagnostic labs to provide the most useful data that they possibly can," says Rubin.

Funding from the pharmaceutical company Zoetis has allowed Rubin's laboratory to examine resistance to tetracycline, an antibiotic used to fight bacterial infections.

This work was incorporated into Rubin's research funding from the Natural Sciences and Engineering Research Council of Canada's (NSERC) Discovery Grant program. Members of his team are also examining resistance to sulfonamide antimicrobial drugs, and grant funding received from the CAHF will be topped up by more money from NSERC.

"It's really widened into this much broader program than what we initially realized," he says.

Rubin credits the CAHF for its support of relevant research as well as valuable student training opportunities.

"It's bringing new vets into companion animal health research. It's allowed us to detect and describe the emergence of resistance," he says.

Based on their research efforts, Rubin and his colleagues hope to develop new strategies for antibiotic use that will help veterinarians use the drugs more effectively, "both to prevent the emergence of resistance and to give more therapeutic options."

RESEARCH IN PRINT

A roundup of WCVM-related companion animal research articles that have been recently published in peer-reviewed journals.

Lemetayer JD, Snead EC, Starrak GS, Wagner BA. "Multiple liver abscesses in a dog secondary to the liver fluke *Metorchis conjunctus* treated by percutaneous transhepatic drainage and alcoholization." *Canadian Veterinary Journal.* June 2016. 57(6): 605-609.

Tallant A, Ambros B, Freire C, Sakals S. "Comparison of intraoperative and postoperative pain during canine ovariohysterectomy and ovariectomy." *Canadian Veterinary Journal.* July 2016. 57 (7): 741-746.

Kjaergaard AB, Carr AP, Gaunt MC. "*Enteropathogenic Escherichia coli* (EPEC) infection in association with acute gastroenteritis in seven dogs from Saskatchewan." *Canadian Veterinary Journal.* Sept. 2016. 57 (9): 964-968.

Courtice R, Sniatynski M, Rubin JE. "Antimicrobial resistance and beta-lactamase production of *Escherichia coli* causing canine urinary tract infections: Passive surveillance of laboratory isolates in Saskatoon, Canada, 2014." *Canadian Veterinary Journal.* Nov. 2016. 57(11): 1166–1168.

Dobak PT, Starrak G, Linn K, Snead ECR. "Imperforated cor triattriatum dexter in a dog with concurrent caudal vena cava wall mineralization." *Acta Veterinaria Scandinavica.* Jan. 3, 2017. 59:3.

Zapata RC, Meachem MD, Cardoso NC, Mehain SO, McMillan CJ, Snead ER, Chelikani PK. "Differential circulating concentrations of adipokines, glucagon and adropin in a clinical population of lean, overweight and diabetic cats." *BMC Veterinary Research.* April 4, 2017. 13: 85.

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PET RESEARCH

CAHF-supported research, 2017-18

Can CT images be trusted to predict the volume of a gross tumour?
Monique Mayer, Sally Sukut, Cheryl Waldner, Jerome Gagnon, WCVM; Hiroto Yoshikawa, North Carolina State University; Keijiro Shiomitsu, University of Florida; Elissa Randall, Colorado State University

How can we improve post-operative care and pain management in guinea pigs?
Barbara Ambros and Miranda Sadar, WCVM

What's the best X-ray technique for detecting free gas in a dog's abdomen?
Kathleen Linn, Jiaying Ng, Cindy Shmon, Gregory Starrak, Sally Sukut and Justin Whitty, WCVM

What's the metabolic response to dexmedetomidine in healthy cats?
Kevin Cosford, Elisabeth Snead, Tanya Duke and Juliette Bouillon, WCVM

How can we prevent post-operative hypertension and glaucoma in dogs?
Marina Leis, Bianca Bauer, Lynne Sandmeyer, Bruce Grahn, WCVM. Supported by Kaye Canine Fund.

Are fecal bacteria in dogs resistant to chemotherapeutic drugs?
Joe Rubin, Jerome Gagnon, Olivier Campbell and Valerie MacDonald Dickinson, WCVM

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