


HORSE 



HEALTH LINES

WESTERN COLLEGE OF VETERINARY MEDICINE

FALL 2016



**A PASSION
FOR SURGERY**

Ticks in
the mail

DUMONTS DOUBLE
RESEARCH DOLLARS

TOWNSEND EQUINE HEALTH RESEARCH FUND

Horse Health Lines is the news publication for the Western College of Veterinary Medicine's Townsend Equine Health Research Fund (TEHRF). Visit tehrf.ca for more information. Send comments and article reprint requests to:

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SPECIAL THANKS to Caitlin Taylor of Saskatoon, Sask. Caitlin developed most of the content and photography for *Horse Health Lines* (Fall 2016) as part of her WCV summer research communications internship.

On the COVER:

Lola, a registered paint filly, is sitting pretty at Jack and Shirley Brodsky's farm, west of Saskatoon, Sask.

 **Caitlin Taylor**

Adelle and her foal Ophelia, two of Jack and Shirley Brodsky's registered paint horses, enjoy a beautiful summer evening.

 **Caitlin Taylor**



Tinka's Tiano, ridden by Lisa Schultz.

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DuMonts double research dollars

By Caitlin Taylor

Scientists' exciting progress toward solving two common equine health issues has inspired Pat and Mark DuMont to contribute another \$300,000 toward equine research at the Western College of Veterinary Medicine (WCVM) over the next three years.

Their passion for horses and an interest in equine orthopedic research compelled the DuMonts to make their initial donation of \$300,000 in 2013. Now, having seen the work accomplished by the researchers with their funding, the couple decided to commit to a second round.

"The studies seemed to be going really, really well. It would have been a shame to stop them," says Pat, who lives with her husband on their farm in Langley, B.C.

Pat has been involved in the Equine Health Research Fund – now known as the Townsend Equine Health Research Fund (TEHRF) – since 1982. In addition to supporting the fund, she was a member of its advisory board for many years. In 2013, the DuMonts decided to create the Mark and Pat DuMont Equine Orthopedics Research Fund that focuses on musculoskeletal health — a key interest for the couple.

"I've always liked the orthopedic work — it's very visible and in-your-face [surgical work]. It's also very high profile," says Pat, referring to Barbaro, the famous racehorse that shattered its right hind limb during the 2006 Preakness Stakes.

"Orthopedic research in horses is huge. There is no end to projects that require research."

Having owned performance horses for most of her life, Pat believes that more research should be done in orthopedics and other areas that specifically affect sport horses. She sees their support of equine research as a proactive way of helping more and more horses in the future.


Since the initial funding was donated in 2013, WCVM researchers have undertaken two large-scale research projects. One research team, led by Dr. Spencer Barber, aims to understand how stem cells can help with the healing of equine wounds. The second research group, whose principal investigator is Dr. Joe Bracamonte, is searching for a biomarker that will detect the bacteria found in septic joint arthritis — a common issue that can derail a performance horse's competitive career.

In October 2015, Pat and Mark visited the WCVM to meet the researchers and to view presentations on the projects that they had funded. Seeing the tangible signs of their donation was an important moment for both of them.

"It was quite a thrill to sit back and say, 'You've been involved in this, you enabled this to happen.' There is a certain pride in that. It was amazing to see all of these people that were using [the funds]," says Pat. "They all seemed to be having a great time with it and doing wonderful things."

Pat often works with graduates from the WCVM — Western Canada's regional veterinary college — who now practise in B.C. "The veterinarians I see out here are mostly from the WCVM — it is our local university here. If I'm going to support a research fund, it's the only logical choice," says Pat.

While the couple looks forward to seeing how the next \$300,000 will benefit orthopedic research, they also hope their contribution will gain attention in the horse industry and inspire others to contribute to equine research.

"What I really hope is that the general public who has performance horses will see the value in research and be more involved in funding as well," she says. 

The DuMonts view their support of equine research as a means of helping more performance horses in the future.



WCVM surgical resident Dr. Travis Smyth.

© Caitlin Taylor

MAKING THE CUT IN EQUINE SURGERY

By Taryn Riemer

When Travis Smyth was a young boy, it was a close call for Bart the family dog that really sparked his interest in becoming a veterinarian.

“I was stuck at home by myself and I had to manage the dog all by myself until I could get a hold of a veterinarian or parents or any sort of adult,” says Smyth, who was about eight years old at the time.

Smyth finally found some help for Bart, and the dog made a full recovery.

That experience made Smyth want to become a veterinarian — but it wasn’t the only factor in his decision. He grew up on a ranch outside of Merritt, B.C., where Smyth’s family had “pretty much everything: horses, cows, chickens, you name it — the whole bit.”

As he grew older, his interest with animals

“I’m not so much a medicine type where I like to solve puzzles as much as I like to sort of cut and cure things in the short term if I can.”

expanded through his volunteer work at the local mixed animal veterinary clinic and then through his university education.

Smyth received a Bachelor of Science degree with a major in animal biology from Thompson Rivers University in Kamloops, B.C. He then went on to attend the Western College of Veterinary Medicine (WCVM) where he had a chance to learn more about

large animals — especially horses.

After graduating from the WCVM in 2012, Smyth completed a clinical internship at the Idaho Equine Hospital in Nampa. Smyth gained a lot of hands-on experience, and once the internship was over, he began a combined surgical residency-Master of Veterinary Science program at the WCVM in 2013.

Why did Smyth choose to specialize in surgery?

“I like all the procedures that were performed, and I think I view things more analytically,” he says. “I’m not so much a medicine type where I like to solve puzzles as much as I like to sort of cut and cure things in the short term if I can,” says Smyth, whose areas of interest are orthopedic and soft tissue surgeries.


In addition to his residency program, Smyth is also working on his master’s research work. He and Dr. James Carmalt, his graduate supervisor, are focusing on the temporomandibular joint (TMJ) in horses. These joints are located on either side of the horse’s jaw and allow the mouth to open and close.

More specifically, Smyth is investigating whether TMJ disease can be diagnosed within the joint, if it actually affects horses and if it’s painful for them.

Since very little is known about this joint, much of their research has been determining if TMJ disease is actually painful in horses — something they were able to confirm in their study. In December 2015, Smyth travelled to Las Vegas to present his research findings at the American Association of Equine Practitioners’ (AAEP) conference.

The next step for the WCVM researchers is to investigate the formation of arthritis in the equine TMJ.

Smyth completes his program in 2017. A future in academia is one possibility, but clinical work is what he enjoys the most.

“My real passion is the clinical aspect of things, and so I’m probably most likely to go into private practice for the long run,” says Smyth. 

Taryn Riemer is a freelance writer who grew up on a grain-beef cattle farm near White Fox, Sask.

RESEARCH QUARTET

The WCVM Townsend Equine Health Research Fund has provided financial support for four projects that will be conducted by research teams at the regional veterinary college during the next year.

Can focused extracorporeal shockwave therapy treat caudal heel pain?

Drs. Katherine Robinson, Angela MacKay, Stephen Manning, WCVM

The team will test the efficacy of focused extracorporeal shockwave therapy (fESWT) on 36 client-owned horses that have been diagnosed with caudal heel pain.

Can human biomarkers help to diagnose equine metabolic syndrome?

Drs. Julia Montgomery, Fabienne Uehlinger, Katherine Robinson, Ronan Chapuis, WCVM; Gordon Zello, U of S College of Pharmacy and Nutrition

The team is investigating whether biomarkers of human type-2 diabetes can aid in the early detection of equine metabolic syndrome in horses.


Can certain proteins help horse wounds heal faster?

Drs. Spencer Barber, Suzanne Mund, Ali Honaramooz, Bruce Wobeser, Daniel MacPhee, WCVM

The team will examine skin biopsies taken from equine wounds and look for specific proteins known to help with rapid healing in other species.

Can a focus on cellular activities help horses with abdominal adhesions?

Drs. Joe Bracamonte and Seiji Yoshimura, WCVM; Scott Napper, VIDO-InterVac

The team will use a promising technology known as kinome analysis to identify the cellular signalling pathways that start the early development of abdominal adhesions in horses. 



 Caitlin Taylor

Top: Dr. Kate Robinson works with the Lameness Locator on a horse involved in her caudal heel pain study. **Bottom:** Bella was one of many local horses that took part in the EMS research project.

RESEARCH IN PRINT

A round up of WCVM-related equine research articles that have been recently published in peer-reviewed journals

Benmansour P, Billinsky J, Duke-Novakowski T, Alcorn J. "Blood concentrations of remifentanyl during and after infusion in horses anesthetized with isoflurane and dexmedetomidine." *Research in Veterinary Science*. August 2016. 107:202-6.

Boison JO, Dowling T, Johnson R, Kinar J. "Analysis of phenylbutazone residues in horse tissues with and without enzyme-hydrolysis by LC-MS/MS." *Drug Testing and Analysis*. May 2016. 8(5-6):535-8.

Carmalt JL, Johanssen B, Waldner C. "Comparisons between staphylectomy and tie-forward procedures in combination with a sternothyroideus myotectomy for the treatment of intermittent dorsal displacement of the soft palate: an observational study." *Veterinary Surgery*. July 2016 [Epub ahead of print].

Scott ML, John EE, Bellone RR, Ching JC, Loewen ME, Sandmeyer LS, Grahn BH, Forsyth GW. "Redundant contribution of a transient receptor potential cation channel member 1 exon 11 single nucleotide polymorphism to equine congenital stationary night blindness." *BMC Veterinary Research*. June 2016. 12(1):121.

Zachar EK, Burgess HJ, Wobeser BK. "Fine-needle aspiration in the diagnosis of equine skin disease and the epidemiology of equine skin cytology submissions in a western Canadian diagnostic laboratory." *Canadian Veterinary Journal*. June 2016. 57(6):629-34.

Anderson SL, Singh B. "Neutrophil apoptosis is delayed in an equine model of colitis: Implications for the development of SIRS." *Equine Veterinary Journal*. April 2016 [Epub ahead of print].

Diel de Amorim M, Nielsen K, Cruz RK, Card C. "Progesterone levels and days to luteolysis in mares treated with intrauterine fractionated coconut oil." *Theriogenology*. July 2016. 86(2):545-50.

Sanchez-Teran AF, Bracamonte JL, Hendrick S, Riddell L, Musil K, Hoff B, Rubio-Martinez LM. "Effect of repeated through-and-through joint lavage on serum amyloid A in synovial fluid from healthy horses." *Veterinary Journal*. April 2016. 210:30-33.



a *passion*
for **SURGERY**

Article and photos by Caitlin Taylor

WHEN DR. JOE BRACAMONTE was a teenager, he dreamed of becoming a professional rider at the prestigious Royal School of Andalusians in Jerez, Spain.

Luckily for countless horses and their owners, Bracamonte didn't fulfil his childhood dream. Instead, he became a board-certified large animal surgeon.

Now an associate professor at the Western College of Veterinary Medicine (WCVM), Bracamonte has no regrets about the direction his life has taken.

"If I die, I wish heaven [is a place where I] will be doing laparoscopic surgeries all day," says Bracamonte.

Although he was born in Canada, Bracamonte and his family moved back to Spain — his parents' home country — when he was 13 years old. It was during his third year of veterinary school at the University of Extremadura in Cáceres, Spain, that Bracamonte discovered his love for surgery.

"What I like about surgery is the challenge. You don't know what you're getting into until you open the horse up," says Bracamonte.

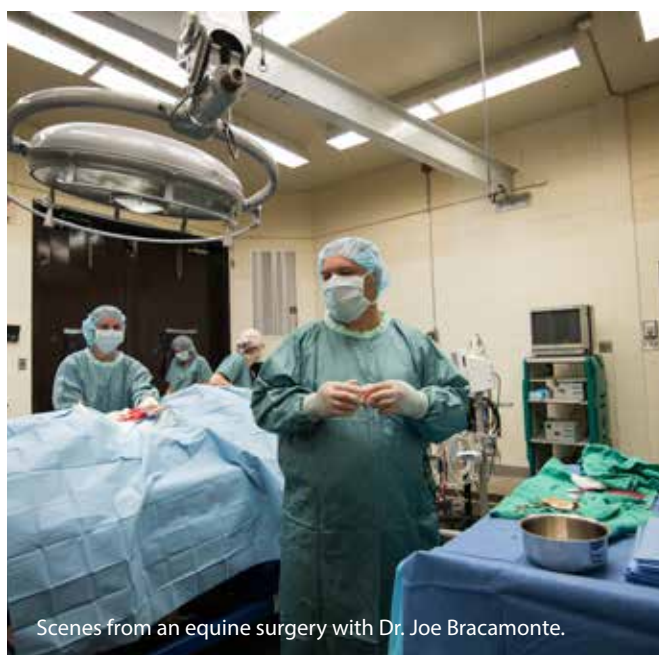
When Bracamonte graduated from veterinary school, there were only three board-certified surgeons in all of Spain. To expand his surgery skills and gain more experience, he secured a one-year internship at a busy equine clinic in the United States. Many patients at the Equine Services Surgical Hospital in Simpsonville, Ky., are valuable performance horses, so Bracamonte participated in a number of high-end, expensive surgeries. The experience also exposed him to many colic, upper airway and laminitis cases.

"There was a good mix of surgeries. There was a bit of everything."

Bracamonte's next move was to the Ontario Veterinary College (OVC) in Guelph, Ont., where he completed a second internship and his Doctor of Veterinary Science degree. His clinical work at the OVC sparked Bracamonte's interest in septic joint arthritis and abdominal surgery, now his two main areas of research.

Septic joint arthritis is a bacterial infection in a horse's joints that requires aggressive and immediate treatment. When horses come into the clinic showing signs of septic arthritis, Bracamonte doesn't take any chances. He immediately starts treatment by flushing out the affected joint using an endoscope outfitted with a camera (a procedure called an arthroscopic lavage).

"In North America, everyone is innocent until proven otherwise, right? But if you're a septic joint, you're guilty until proven otherwise," says Bracamonte.



Scenes from an equine surgery with Dr. Joe Bracamonte.

"Depending on how chronic it is, we try to clean up the joint as best we can. The solution to pollution is dilution."

After this step, treatment becomes less clear. If the horse continues to show pain in the days following the surgery, Bracamonte will perform regional limb perfusions. For this procedure, he delivers high concentrations of antibiotics to an isolated infected area using a tourniquet.

Unfortunately, no one has been able to identify a biomarker to detect the levels of bacteria in the joint, so clinicians are not sure when the bacteria is gone. This makes it difficult for Bracamonte and his colleagues to know when to stop treatment.

Antibiotics are hard on a horse's digestive tract and unnecessary antibiotics can lead to antimicrobial resistance. For this reason, Bracamonte aims to find a biomarker that will accurately detect the complete removal of bacteria in infected synovial structures (joints or the tendon sheath) so veterinarians can stop treatment when the infection clears up.



His second area of research focuses on why abdominal adhesions form in horses after they've undergone surgery. According to Bracamonte, there are products on the market that aim to prevent the formation of adhesions. But many of these aren't specific to horses and none of the products are a result of thorough research into the cellular and molecular mechanisms found in adhesions in horses.

Bracamonte says researchers need this deeper understanding of adhesions before they can comprehend why they form in the first place.

"I was in the same boat as everybody. Nobody has looked at why they form in horses. It's totally different," he says.

Bracamonte is working closely with Dr. Scott Napper, a protein biochemist with Vaccine and Infectious Disease Organization-International Vaccine Centre (VIDO-InterVac). Bracamonte collects samples of horses' intestines before and after experimentally inducing adhesions in adult horses and foals. Then Napper uses these samples to run a kinome analysis, a promising technology that has allowed researchers to tackle complex biological problems in a wide range of species.

The kinome represents the number of communication pathways in a cell controlled by the kinases (fragments of proteins, or peptides), and these pathways control cell function.

Bracamonte and Napper plan to use this

method to accurately identify the cellular signalling pathways that start the early development of adhesions. Once they know how adhesions are formed both in adult horses and young foals, they will be better equipped to stop them.

Bracamonte now has funding for his research projects, but it was a different story when he first started building his research program.

"I was frustrated. I put everything — all of my money — into that grant, and I got rejected," he says.

"If I die, I wish heaven [is a place where I] will be doing laparoscopic surgeries all day."

Bracamonte remembers a moment on Christmas Eve a few years ago in the parking lot near the WCVM. He ran into Dr. Hugh Townsend, whose research work in equine influenza, vaccine efficacy and vaccine development is internationally known. The veteran scientist listened to Bracamonte's issues and gave the young researcher a much-needed boost.

"He told me how many times he got rejected," recalls Bracamonte. "He said, 'This is the life of an academic and a researcher. As much as you think you have the best idea, sometimes you just have to sit back and

reconsider things.'"

Townsend advised Bracamonte to connect with Napper, who would end up being an important partner in his abdominal adhesion research project. That Christmas Eve conversation with Townsend was an important turning point in Bracamonte's academic life.

"A 15-minute talk changed my career," he says.

Bracamonte also sees Dr. Baljit Singh, WCVM's former associate dean of research and the new dean of the University of Calgary's Faculty of Veterinary Medicine, as another important mentor. Singh's encouragement gave Bracamonte the inspiration and confidence to continue trying until he succeeded in attracting research funding.

"That was the pep talk that I needed to dust myself off and think, 'Okay, what do I need to change?' The light bulb came on, I started to get big [research] grants one after the other," says Bracamonte.

His research program is now in full swing. Bracamonte has received support from the Mark and Pat DuMont Equine Orthopedics Research Fund, the L. David Dubé and Heather Ryan Veterinary Health Research Fund and the Townsend Equine Health Research Fund (TEHRF) in support of his projects.


As TEHRF's new chair, Bracamonte hopes to encourage the high quality of research that Townsend strived to uphold. He's also excited about recruiting new WCVM scientists to come forward and participate in equine research.

In addition to his research work, Bracamonte juggles his time between clinical cases in the WCVM Veterinary Medical Centre and his teaching schedule at the veterinary college. When he first joined the WCVM faculty, Bracamonte wasn't sure if he'd enjoy teaching — but he now finds it one of the most rewarding parts of his job.

"I love teaching students and I love teaching residents. As a surgeon, I feel more proud that my residents do well than myself," he says. "I've accomplished my goal of becoming what I want; now I want them to have more training."

As for his roots in Spain, Bracamonte visits his family every summer and volunteers his time by speaking at the country's veterinary colleges as a way of giving back.

He also makes a point of regularly stopping in at the Royal School of Andalusians to enjoy a performance.

"I have to go visit the school," says Bracamonte. "My wife says [that when I'm there,] I look like our little kids when we go to Toys"R"Us." 

JOSCELYN MCKENZIE

by Caitlin Taylor

When an opportunity came up to work with equine surgeon Dr. Joe Bracamonte at the Western College of Veterinary Medicine (WCVN), third-year veterinary student Joscelyn McKenzie jumped at the chance.

“I wanted to learn more surgical skills and [see] how things are done in the hospital with horses. Being Dr. Bracamonte’s research student just gave me that opportunity,” says McKenzie, whose research job is supported by the Townsend Equine Health Research Fund (TEHRF).

McKenzie discovered her love for surgery while completing her undergraduate degree in biology at Simon Fraser University. Whenever she had time, McKenzie volunteered in both small and large clinics.

“In my second year we had cadaver labs, and I really looked forward to those opportunities to practise procedures.”

This summer, McKenzie has spent most of her time working with Bracamonte on his research targeting abdominal adhesions. She has also helped equine surgery resident Dr. Seiji Yoshimura with his study of septic joint fluid. Another summer project for McKenzie: helping Dr. Julia Montgomery with her project focusing on imaging technology and its use for faster, more accurate diagnosis of diseases such as cancer.

McKenzie found the fast-paced environment of the WCVN’s Veterinary Medical Centre challenging at first, but she quickly caught on. She also had the opportunity to handle foals – something she didn’t have experience with before this summer.

As part of her duties, McKenzie is in charge of making sure that supplies are ready for when the researchers arrive. During surgery, she is available to hand over the tools that the surgeons require during the procedures. McKenzie is also responsible for sewing up surgical incisions while Bracamonte supervises.

“Even though he is super busy, he’ll give me a chance to do it. And he’ll quiz me. He’s a really good mentor,” says McKenzie.

Following surgery, McKenzie gives the horses their medications and monitors their breathing, heart rate and temperature.

Abdominal adhesions often form in foals following surgery for common issues such as colic. The research being conducted by Bracamonte, with the help of students like McKenzie, will hopefully uncover why these adhesions form. Once researchers answer



“Even though he’s super busy, he’ll give me a chance to do it. And he’ll quiz me. He’s a really good mentor.”

Under Dr. Joe Bracamonte’s supervision, veterinary student Joscelyn McKenzie sutures a young foal following surgery.

📷 Caitlin Taylor

that question, they will be better equipped to prevent the adhesions from developing.

It has been a challenging summer, but McKenzie is glad that she spent her time researching this important part of equine health.

“This is a really cool project. Horses colic all the time, so if you can make that surgery more successful then that’s a pretty worthwhile project,” says McKenzie. “It’s something you feel good pursuing.”



“No one wanted to open any packages for me ...”



Article and photos by Caitlin Taylor

Dr. Katharina Lohmann led a Saskatchewan-wide study that investigated which tick species are found in Saskatchewan

Several years ago, Dr. Katharina Lohmann’s mailbox at the Western College of Veterinary Medicine (WCVM) gained an unfortunate reputation.

It happened while she was principal investigator of an equine research project focusing on ticks. Between 2011 and 2013, dozens of horse owners from around Saskatchewan sent in more than 800 ticks to her mailbox at the veterinary college.

“It became a running joke,” says Lohmann, a board-certified specialist in large animal medicine and an associate

professor at the WCVM. “No one wanted to open any packages for me, because there was a good chance there were ticks inside them.”

These packages were part of a research project investigating which tick species are found on horses in Saskatchewan.

It was her work in the WCVM’s Veterinary Medical Centre that led Lohmann to the research topic. In 2010, a veterinarian in southern Saskatchewan reported a horse with clinical signs of equine anaplasmosis – a disease transmitted by ticks to horses. The veterinarian sent blood

“It is possible to see tick-borne diseases in areas that are not supposed to have them.”



samples to the college, and tests revealed that the horse was the first official case of equine anaplasmosis diagnosed in Saskatchewan.

This report, combined with more and more horse owners asking questions about ticks and horses, convinced Lohmann that a study was needed.

“We thought there seemed to be a lot of ticks on horses in Saskatchewan, so [we decided] let’s actually look at what kinds of ticks we are finding and at what time of the year,” says Lohmann. “We asked, ‘Are we finding the ticks that carry the tick-borne diseases?’ Because not all of them do.”

Once the WCVM sent out posters advertising the study, word spread quickly.

“We just put the word out asking people to send in ticks so we could identify them. We actually had a very good response,” says Lohmann. Along with the ticks, researchers also asked owners to submit their contact information, location and their horses’ recent travel history.

The packages started crawling in. After carefully opening her mail, Lohmann took the ticks to Dr. Neil Chilton’s parasitology lab in the University of Saskatchewan’s Department of Biology where the team identified each tick’s sex, life stage and species.

The research team learned that Saskatchewan is home to three types of ticks that bite horses: the American dog tick (wood tick), winter tick and the Rocky Mountain tick. In Saskatchewan, the most common species is the wood tick. These ticks infect many different mammals, and based on the study’s findings, wood ticks were mostly found near Saskatoon, Regina and Swift Current.

Luckily, Lohmann and her team did not find any blacklegged ticks (*Ixodes scapularis*) — known for carrying equine anaplasmosis and Lyme disease — but blacklegged ticks do occasionally find their way into the province.

“There are reasons why one doesn’t find them — they’re small, they’re probably just difficult to find on the horses,” says Lohmann.

“Even though those ticks aren’t endemic here, meaning they haven’t established their own complete life cycle, they can be brought in by migrating birds. So it is possible to see tick-borne diseases in areas that are not supposed to have them.”

Between one and three weeks after coming into contact with an infected tick, horses can show clinical signs of equine anaplasmosis. They may develop a fever, their limbs may swell, they may lose their appetite, and they become lethargic and depressed. Similarly with Lyme disease, horses may show signs including a fever, sporadic lameness, arthritis and chronic weight loss.

Over the years, veterinarians across Saskatchewan have reported a few of these disease cases to the WCVM. Until this point, researchers hadn’t investigated how many horses in the province have antibodies



WCVM scientist Dr. Katharina Lohmann.


in their blood for Lyme disease and equine anaplasmosis — an indication that the animals had previous exposure to the disease-causing bacteria. This type of analysis is known as a seroprevalence study.

During the province-based study on tick species, Lohmann also teamed up with more researchers to study the seroprevalence of tick-borne diseases in Saskatchewan, Manitoba and Ontario.

Their results showed that the percentage of horses in Saskatchewan that have been exposed to Lyme disease or equine anaplasmosis was 0.49 per cent — but Lohmann cautions that the study’s testing methods weren’t designed to screen for diseases. It’s possible that fewer — or even more — Saskatchewan horses actually have antibodies to the tick-borne diseases.

“It was interesting to see that when we asked the same question of the same sample in different ways, we got different answers — which tells me the tests don’t agree,” says Lohmann. She adds that the research confirmed the need for a more reliable way of screening for Lyme disease and equine anaplasmosis antibodies in horses.

Lohmann believes that climate change could be one reason why these ticks and their diseases are making their way into the province. While the threat of these tick-borne diseases still remains low, it’s good for horse owners to be mindful of the potential risk.

“I no longer think of these diseases as something we don’t ever see around here,” says Lohmann. “I think they are rare, but I do think it happens ... people need to be aware.” 

Planning key to protecting horses' health



© Myrna MacDonald

To avoid the spread of disease, always use your own feed and water buckets.

AS A HORSE OWNER, you're always on the lookout for potential risks to your horse's well being at home and on the road. But what you may not realize is that the greatest threat could be standing right in the next stall.

"The most dangerous thing to your horse's health is another horse," says Dr. Chris Clark, a large animal internal medicine specialist at the Western College of Veterinary Medicine (WCVN). He also led the development of biosecurity manuals for the college's Veterinary Medical Centre.

Biosecurity is the practice of minimizing the chance of horses getting sick. As Clark points out, it's much easier to prevent a horse from becoming ill versus "trying to figure out how to treat it."

But accomplishing this goal can be more difficult than it sounds, especially when a horse appears healthy even though it's ill.

"It's easy to diagnose a clinical case where the horse looks sick, but a subclinical case can shed bacteria into the environment and infect other horses without us knowing it," says Clark.

Talking to your veterinarian and doing your own research can help you to improve the biosecurity at your own barn and as you travel with your horses. There are also a few basic principles that every owner can follow to protect their horses' health.

- **Plan.** Plan for horses to get sick: create a designated quarantine space. By working with healthy animals before feeding or treating the sick animal, you can also prevent the spread of disease on your property.

"Look online, talk to your veterinarian and think about what you can do. The key is to create a workable plan," says Clark.

- **Assess your risk.** Determine the amount of risk you're comfortable living with.

For example, Clark says if you operate a high-end breeding operation with valuable horses, biosecurity should be paramount. With good biosecurity in place, stables and arenas can be completely functional even with high horse traffic.

- **Vaccinate.** Talking to your veterinarian to determine which diseases you should vaccinate your horse against is one of the most important things you can do.

- **Properly clean and disinfect.** The first step of disinfection is to remove visible dirt and

feces until the surface looks clean — but that's only the beginning.

"You've taken all the heavy stuff, but the biofilm is left behind. It's a tough, microscopic layer of fat and protein, and the bacteria hide underneath it," says Clark.

To remove biofilm, scrub the surface with soap before disinfecting. Follow the instructions on the disinfectant's label to create the right concentration and to maximize its effectiveness.


"Apply the solution to the things you need to disinfect and leave it on for 10 minutes," says Clark. He adds that some disinfectants need to be rinsed while others can be left on the surface.

- **Wash your hands.** Touching a horse's muzzle is a correct way to introduce yourself, but it's also a way to smear your hands with viruses and bacteria from the horse. When you go from one horse to the next without washing your hands, you're acting as a disease transmission system.

- **Don't share tack and equipment.** This is an important rule in your own barn, at a boarding barn and at shows. Each horse should have its own feed and water buckets, tack and grooming equipment, and all equipment should be labelled to prevent shared equipment use between horses.

- **Be proactive at horse shows or events.** Clark also recommends choosing horse shows or competitions that ask for proof of a negative equine infectious anemia (EIA) certificate because this requirement shows that the organizers have given consideration to infection control.

Using your own equipment and tying your horse to your trailer versus stabling with other horses can help prevent illness. Never allow your horse to drink from a shared trough; instead, opt for filling your own bucket using a faucet or hose.

And although it seems obvious, Clark has one final, simple piece of advice: if your horse is showing any signs of illness, don't transport it to a horse show or public event — no matter how much you lose in entry fees. 

New role pins Thomas to WCVM

By Caitlin Taylor

Her surgical residency as the Townsend Equine Health Research Fund (TEHRF) fellow has wrapped up, but Dr. Keri Thomas is staying put — and she couldn't be happier about it.

During the last four years, Thomas has learned from large animal surgeons at the Western College of Veterinary Medicine (WCVM) while also navigating her own clinical and research work. Now she's making the switch from surgical resident to an assistant professor at the college.

"I like working with groups of people that are specialists in their field. All of this information is right at your fingertips," says Thomas, who is covering a one-year sabbatical leave.

Thomas grew up on a North Dakota ranch before moving to Iowa State University to earn her veterinary medicine degree. She then spent a year as a clinical intern in Arizona before applying for a residency at

the University of Saskatchewan.

"I came for an interview and fell in love with this place. The people here are a lot like the people at home," says Thomas, who is also working on a Master of Science degree in large animal surgery.

Her research, which was supervised by Drs. David Wilson and James Carmalt, focused on how best to heal fractures in horses' front legs.

When a fracture is unstable, casts alone are not always strong enough to support a horse's whole body weight. To help stabilize and distribute the animal's weight more evenly, surgeons often use a method called transfixation pin casting — drilling metal pins through the cannon bone and then

attaching them to the cast.

"You drill a pin across the bone and you incorporate the pin in the cast, so the leg is just suspended within the cast," says Thomas.

She investigated two common methods: using two bigger pins or four smaller pins. Surgeons use both methods, but no one has ever compared them.

After orthopedic surgery, a horse with a fractured leg typically needs about six weeks of stall rest while wearing a cast — depending on the type of fracture. Even though it's confined, the horse still bears weight on its injured leg as it stands and walks around the stall.

Thomas and her supervisors worked with U of S College of Engineering researchers to design a project that simulated the pressure placed on the orthopedic pins during recovery.


Using 30 limbs from equine cadavers, researchers placed strain gauges — small sensors — in various spots along each leg to monitor pressure. Each strain gauge took digital measurements every one to two seconds over 23 hours.

With the help of James Johnston, an associate professor of mechanical engineering, Thomas interpreted the project's data. Results showed that the four-pin method was the most effective, but Thomas says further research is needed.

"The information also suggests that we need to think about a different design, maybe using three pins that are not as big as the two-pin model — but not as small as the four-pin model."

During her residency, Thomas also helped other WCVM colleagues with their own projects.

"When you're inexperienced, anything you can get involved in is very helpful. It gives you different perspectives," says Thomas, who looks forward to sharing her skills and experiences with students.

"What I've experienced here is going to be very helpful in my career. I don't have a lot of classroom teaching experience so the next year is going to give me that opportunity." 



"I came for an interview and fell in love with this place."

 Caitlin Taylor

GALLOPING GAZETTE

By Caitlin Taylor

IN MEMORIAM

Ron Southern

Renowned businessman and equine advocate Ronald (Ron) Southern passed away on January 21, 2016, at the age of 85. Southern was best known in the horse industry for co-founding Spruce Meadows in 1975 with his wife, Margaret Southern. He was also well known in the Canadian business community, winning many awards such as the Financial Post's CEO of the Year in 1996 and an induction into the Canadian Manufacturing Hall of Fame in 2007. In 1990, Southern received the Order of the British Empire for his efforts in Anglo-Canadian relations.

Southern has always been an avid supporter of equine research and was one of the founding supporters of the WCVM's Equine Health Research Fund (now known as TEHRF). In 2011, the Southern family also provided financial support for construction of the veterinary college's equine performance centre.

Dr. John Twidale

British Columbia's veterinary community lost a valuable member of its team on April 22, 2016. Twidale, a well-respected equine veterinarian from Langley, B.C., passed away after a long battle with colon cancer at the age of 73. Twidale earned his veterinary degree from Cambridge University in 1967. He lived and worked all over the world before settling in Langley in 1973 where he made lifelong friendships with clients and horse owners. Twidale chaired the British Columbia Veterinary Association's equine committee for 20 years and played a key role in organizing the annual Delta Conference that always included quality continuing education for equine veterinarians. Twidale also served as a TEHRF board member for many years. In honour of his passion for equine health, his family asked for donations to be made to TEHRF in Twidale's memory. Donations can be made at tehrf.ca.

AWARD-WINNING VET STUDENTS

Maia Aspe

Fourth-year WCVM student Maia Aspe of Oliver, B.C., was one of 25 North American students who received funding from the Winner's Circle Scholarship Program, offered through the American Association of Equine Practitioners (AAEP) Foundation. Aspe served as student representative on the Townsend Equine Health Research Fund and was the lead student organizer for the equine health demonstrations at the 2016 Saskatchewan Equine Expo. The Winner's Circle Scholarship Program helps to relieve some of the financial stress that students face in their final year of veterinary medicine. Students receive awards ranging from \$1,500 to \$5,000, depending on their individual needs. Award recipients are selected on their leadership roles and commitment to a future in equine health.



Fourth-year veterinary student Maia Aspe.

Whitney McLean

Whitney McLean, a fourth-year veterinary student from Victoria, B.C., has been selected to receive a TEHRF Equine Externship Student Award for 2016. The \$500 award will help to cover McLean's travel expenses for an equine externship during her final year at the WCVM. McLean will spend two weeks at JCS Veterinary Reproductive Services in Langley, B.C., in March 2017. Dr. Juan Semper, a board-certified theriogenologist, will supervise McLean's work as she gains more experience with embryo transfer, semen collection and managing young foals.



Dr. Jolanda Verhoef

GRADUATE AWARDS

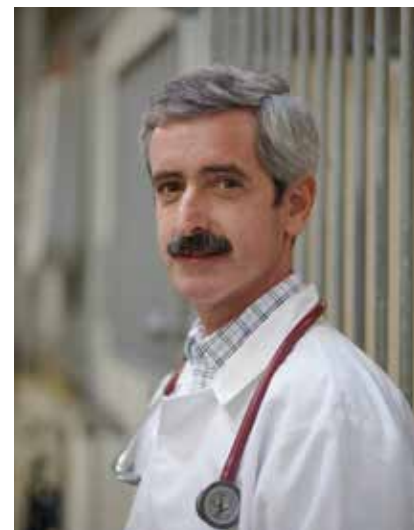
Two WCVM graduate students have received TEHRF Graduate Research Awards in support of their graduate research programs. Dr. Carolina Duran Graeff is a large animal internal medicine resident who is also completing a Master of Veterinary Science degree at the WCVM. Supervised by Dr. Fernando Marqués, Duran Graeff is investigating cortisol concentration in male horses' hair to determine stress levels during castration. Dr. Jolanda Verhoef is a Master of Science graduate student in veterinary pathology whose work is supervised by Dr. Ahmad Al-Dissi. Verhoef is studying the role that a protein called metallothionein plays in horses with liver injuries. Each year, TEHRF selects recipients of the \$3,000 award based on the merit of the students' research projects, their academic performance and financial need.

ON THE MOVE

Two key members of the Townsend Equine Health Research Fund (TEHRF) management team have moved on to new challenges in the veterinary world. Dr. Baljit Singh left his WCVM role of associate dean of research to become the new dean of the University of Calgary's Faculty of Veterinary Medicine. Singh enthusiastically promoted the veterinary college's horse health research program around the world and was instrumental in encouraging new faculty to be involved in equine-focused research projects. Dr. Fernando Marqués, associate professor in the WCVM's Department of Large Animal Clinical Sciences, is now a clinical associate professor (large animal internal medicine) at the University of Wisconsin-Madison's School of Veterinary Medicine. A former TEHRF chair, Marqués was an active member of WCVM's equine research, clinical and teaching team. He was also very involved in promoting horse health in Western Canada and recently served as chair of the Saskatchewan Horse Federation's Health and Wellness Committee.



Dr. Baljit Singh



Dr. Fernando Marqués

RESEARCHERS GIVE HORSES A LIFT

Despite advances in orthopedic surgery, a broken limb usually means the end of a horse's life. Owners often decide not to pursue treatment because of long recovery times and other risks such as supporting limb laminitis. That mindset could change with the development of a one-of-a-kind robotic lift system developed at the WCVM. Dr. Julia Montgomery, a large animal internal medicine specialist, is working with a group of researchers and representatives from the Saskatoon-based company RMD Engineering to create the system. Unlike slings and other devices to aid in horse healing, the lift evenly redistributes a horse's weight to avoid pressure sores and other complications. While the device is still in the trial stages, Montgomery and her team are optimistic about the future of their project. For more details, visit tehrf.ca and search "Montgomery."



Christina Weese



GIVE THE GIFT OF **GOOD HEALTH** to your horse.

Want to improve your horse's odds of enjoying a lifetime of good health?

It's this simple: give to the Western College of Veterinary Medicine's Townsend Equine Health Research Fund (TEHRF).

Your generous gift will go toward three key areas that all help to enhance equine health care in Western Canada and around the world.

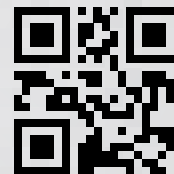
➤ **Innovative horse health research:** Studies in essential areas such as lameness, infectious diseases, reproduction and wound healing.

➤ **Specialized training** for graduate students whose research focus is equine health.

➤ **Valuable educational opportunities** for veterinary students — Western Canada's future veterinarians.



*Dr. Julia Montgomery
large animal internist, WCVM*



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