HORSE HEALTH LINES
WESTERN COLLEGE OF VETERINARY MEDICINE
UNIVERSITY OF SASKATCHEWAN
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TOWNSEND INDUCTED TO HALL OF FAME

Dr. Hugh Townsend.
Michael Raine

A lifetime of working to enhance horse health has earned a place of honour in the Saskatchewan Horse Federation's (SHF) Hall of Fame for University of Saskatchewan (USask) alumnus and professor emeritus Dr. Hugh Townsend.

Townsend, who spent most of his 42-year career at the Western College of Veterinary Medicine (WCVM), is world renowned for his research work in developing equine vaccines and improving their efficacy. In addition to his clinical, teaching and research roles at the WCVM, Townsend worked as a research scientist and program manager at the USask Vaccine and Infectious Disease Organization (VIDO) for over a decade.

Townsend's many contributions to the horse industry were celebrated at the SHF's Hall of Fame induction ceremony and banquet on March 17. Morton Seaman, a draft horse breeder and owner from Choiceland, Sask., was also recognized at the event.

Townsend is the first equine practitioner, academic and scientist to join other provincial inductees in the ceremonial hall that was established in 2019.

"It does make me very happy to see that this close relationship between horse owners and their veterinarians is being recognized through this award — I think that's great," says Townsend. "I'm delighted to be recognized, but everybody knows that I'm just one of a very long line of veterinarians who have dedicated their time and energy to try and care for horses — and to try and learn how to do it better."

Originally from Calgary, Alta., Townsend came to USask in 1969. He earned his Doctor of Veterinary Medicine degree from the WCVM in 1973 and practised in New Zealand and Australia before returning in 1977 to become the WCVM Equine Health Research Fund's first research fellow. He joined the college's faculty in 1979.

During his distinguished career, Townsend improved horse health as a veterinarian, educator, researcher and

TOWNSEND INDUCTED TO HALL OF FAME *continued*

advocate. An international expert on equine vaccines and their efficacy, he devoted most of his career to the development, evaluation and improvement of equine vaccines.

One of the most impressive studies was an epidemiologic study on respiratory diseases involving 600 thoroughbred racehorses stabled at Marquis Downs in Saskatoon, Sask. Townsend and his graduate student, Dr. Paul Morley, devised a randomized, controlled, blinded field trial of a prominent equine influenza vaccine at the time. Three weeks after completion of the vaccination program when the vaccine should have been most effective, a naturally occurring outbreak of influenza spread through the track's horse population.

"We produced irrefutable evidence that the vaccine didn't work," says Townsend, adding that the rate of disease was no difference between vaccinated and non-vaccinated horses.

That convincing study led to more fascinating work in investigating the efficacy of existing vaccines and helping to test more effective vaccines for equine influenza and other infectious diseases. Townsend and his collaborators were the first to carry out randomized, controlled influenza vaccine challenges in horses in North America.

The researchers also worked with Heska Corporation. The Colorado-based pharmaceutical company developed a new intranasal vaccine for equine influenza (Flu Avert I.N.) that's still in use.

"We did the USDA (U.S. Department of Agriculture) efficacy studies for that vaccine — and that was the first published evidence for a North American influenza vaccine efficacy that I'm aware of," says Townsend. Another highlight was working with graduate student Dr. Tasha Epp to provide the first scientific field evidence of the efficacy of the new West Nile virus vaccine.

Townsend is also known for his efforts to raise the profile — along with millions of dollars in donations — for the Equine Health Research Fund. In recognition of his work, the charitable organization was rechristened the Townsend Equine Health Research Fund (TEHRF) after his retirement in 2015.

"I think the real contribution of the Equine Health Research Fund was that it just brought a clear, organized focus to the horse and horse health," says Townsend. "It just led to so many students, veterinarians and faculty getting involved in horse health … suddenly, we were producing experts who were going back out into the field in Western Canada and elsewhere and becoming influential as equine practitioners, professors and research scientists."

Acting SHF president Lorraine Gilchrist (left) presented the equine welfare award to Dr. Nathalie Reisbig.
Myrna MacDonald

SHF awards vet for equine welfare

This year, the Saskatchewan Horse Federation (SHF) also honoured another veterinarian, Dr. Nathalie Reisbig, for her outstanding dedication to equine welfare.

Reisbig, who joined the WCVM Veterinary Medical Centre's Equine Field Service in May 2022, received the SHF's Award of Distinction in Equine Welfare during the organization's annual conference in March 2023.

Originally from Norway, Reisbig was a racehorse trainer and a FEI (International Federation for Equestrian Sports)-accredited show steward. She went on to pursue veterinary studies in Germany before moving to North America and completing specialized training at The Ohio State University.

Tammy Rettger of Aberdeen, Sask., nominated Reisbig for the award. In her nomination letter, Rettger said Reisbig's commitment to responsible horse care "shows through her work as a veterinarian, where she consistently demonstrates that her number one priority is always the welfare of the horse."

"Having your [horse owners'] trust and the ability to be allowed to say my opinion — whether it's really good to hear or not to hear — means a great deal to me," said Reisbig after receiving the award. "It is what I wake up in the morning for and what I go to bed for."

UNIVERSITY OF SASKATCHEWAN

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LIGHTNING learning

Graduate students at the Western College of Veterinary Medicine (WCVM) recently participated in a "lightning rounds" session as part of the WCVM's annual EquineED Talks series for horse owners. All of the students were 2022 recipients of tuition awards through the WCVM's Townsend Equine Health Research Fund.

The following summaries highlight the key points given in each student's brief talk. Visit wcvm.usask.ca (click on "Education" and "2022-23 EquineED Talks") to access the recorded session.

Cardiac care for horses

Dr. Nicole van der Vossen (supervisor: Dr. Julia Montgomery)
Quick view: In her study, van der Vossen tested the effectiveness of ramipril, an angiotensin-converting enzyme (ACE) inhibitor drug, in comparison to benazepril, another ACE inhibitor that's more expensive. ACE inhibitors help to slow down the process of heart failure in people and animals — including horses.

Causes of equine abortions

Dr. Madison Ricard (supervisor: Dr. Bruce Wobeser)
Quick view: Until recently, researchers didn't consider the bacterium *Chlamydia psittaci* as a potential cause of equine abortions. Ricard analyzed aborted equine tissues collected from 99 previous cases and found 26 chlamydia-positive samples. But these cases were positive for a different strain: *Chlamydia abortus*, a potentially zoonotic pathogen. What's still unknown is whether chlamydia caused the equine abortions or if the bacterium was just present in tissue.

Equine anesthesia and pain control

Dr. Antonio Guerra (supervisor: Dr. Keri Thomas)
Quick view: Guerra's study tested methods to extend the "half- life" of lidocaine, a local anesthetic and numbing agent, used in horses. Half-life is the time it takes for the drug's active substance to diminish in the patient's body. Guerra combined 0.4 millilitres of xylazine (drug used for anesthesia and pain control) into a 50-millilitre bottle of lidocaine. This combination significantly increased the medication's duration: the average half-life was 171 minutes — nearly three times in length compared to using lidocaine only.

Equine parasites

Toni-Anne Saworski (supervisor: Dr. Emily Jenkins)
Quick view: Veterinarians use fecal egg counts (FECs) to measure how many parasite eggs per gram of feces that a horse is shedding. But since each of the 53 species of large and small strongyles has the exact same egg in appearance, it's difficult for veterinarians to determine which parasites are affecting a horse and to measure the health risks. By identifying the DNA of each of these strongyle eggs, Saworski's work provides a more specific way to identify strongyle species. So far, she has identified the DNA of 35 strongyle species.

Equine endocrine disease detection

Dr. Paula Viviani (supervisor: Dr. Julia Montgomery)
Quick view: Pituitary pars intermedia dysfunction and equine metabolic syndrome are two endocrine disorders in horses. They can be diagnosed by measuring a horse's levels of adrenocorticotropic hormone (ACTH) and insulin, respectively. By measuring the ACTH and insulin of healthy horses, Viviani is analyzing these numbers based on specific factors that fluctuate (season, weather and time of day). Her work will help to establish a hormone baseline specifically for western Canadian horses.

Equine pregnancy and the need for iodine

Dr. Maria Jose Terol Monar (supervisor: Dr. Claire Card)
Quick view: Iodine is critical for thyroid function and fetal development during a mare's pregnancy. The Canadian Prairies are deficient in natural iodine, and previous research has linked a musculoskeletal disease called congenital hypothyroidism dysmaturity syndrome (CHDS) to inadequate iodine uptake. In her study, Monar worked with two groups of pregnant mares. Starting mid-pregnancy, the team supplemented one group of the mares' feed with four milligrams of iodine while the other group received no iodine supplement. Researchers observed the mares midway through their pregnancy to one month postpartum. Monar's goal is to describe the effect of iodine supplementation on iodine concentrations in pregnant mares' serum, urine, colostrum and milk. Results will help to develop reference levels and establish new guidelines for pregnant mares.

Visit tehrf.ca to read unabridged research summaries.

Dr. James Carmalt (centre, blue shirt) and Dr. Carolina Durán (left of Carmalt) with students and staff at the Universidad Austral de Chile's veterinary school. *Supplied*

Equine global ambassadors

By Jessica Colby

A University of Saskatchewan (USask) program that fosters collaboration between educators around the world helped to transport large animal surgical specialist Dr. James Carmalt to South America for two weeks in January 2023.

Carmalt was a guest lecturer and clinician at the Universidad Austral de Chile in Valdivia, a city located about 850 kilometres south of Santiago, Chile. His trip was part of the USask Global Ambassador program that provides financial support for the university's faculty and staff to travel to international universities and other facilities aligned with areas of strength at USask.

Carmalt lectured at the Universidad Austral de Chile's veterinary school and provided continuing education courses in his specialty, which includes temporomandibular joint (TMJ) disorders, the larynx and surgery of the head and neck — particularly the sinuses — in horses.

While planning his trip to Valdivia, Carmalt worked with Dr. Carolina Durán, who studied at the WCVM from 2013 to 2016. She's now a faculty member who practises in the equine clinic at Universidad Austral de Chile's veterinary hospital.

"We always got along very well when I was doing my residency," says Durán of Carmalt. "I called him because I was looking for a specific treatment that we needed, and I couldn't find the 'recipe' for it."

Carmalt mentioned the university's Global Ambassador program to Durán, and she proposed the idea of him coming to visit Chile.

"It's really a multi-faceted approach to foster ties between faculty members at the different institutions, to develop new graduate student streams potentially, [and] to facilitate movement of undergraduate students between the two universities," says Carmalt.

"The academic aspect is to improve collaboration between both universities, so that undergraduate and graduate students can come to Chile or go to Canada," adds Durán.

Since Chile has fewer veterinarians specializing in large animal surgery, Durán says it's quite common for visiting specialists like Carmalt to come and provide continuing education for local veterinarians.

"I looked at clinical cases sent in by clients because they don't have a surgeon here. I [did] equine surgery for them," says Carmalt, who was able to share skills and techniques for some surgical procedures that his Chilean colleagues don't normally perform.

During his stay, Carmalt primarily worked on Chilean horses — a breed of prized cow horse and the only breed used in Chilean rodeo — and Arabians. As he worked alongside the veterinary school's clinicians and local veterinarians, he also picked up some valuable tips to bring back to Canada.

In Chile, Durán emphasizes that it is not only important to be "prepared for plan A, but also having an option to work with plan B, C and D."

In turn, Carmalt was able to share his clinical knowledge from his education and "great training" at USask.

"Getting the experience of knowing different people in your field helps you to have more eyes on the same problem, which gives you more chances to actually fix it or find a solution," says Durán. "I think collaboration is the key for success."

Visit tehrf.ca to read full story.

Western Canadian veterinarians now have access to equine metabolic testing that's based on region-specific hormone reference values in horses.

Caitlin Taylor

Hormone baseline for West takes shape

By Jessica Colby

As the number of older horses in Western Canada grows, so does the number of animals that are diagnosed with endocrine disorders such as pituitary pars intermedia dysfunction (PPID) and equine metabolic syndrome (EMS).

Dr. Julia Montgomery is an associate professor at the Western College of Veterinary Medicine (WCVM). She's leading a study that's measuring adrenocorticotropic hormone (ACTH) and insulin levels in healthy horses to determine a regional baseline for these two markers, which are critical for diagnosing PPID or EMS.

PPID, formerly known as equine Cushing's disease, is a hormonal disorder that affects older horses. With EMS, horses may have additional fat deposits on their necks, shoulders and rumps.

"[EMS] is an increasing problem with increasing obesity in our horse population," says Montgomery, who also works as a large animal internal medicine specialist at the WCVM Veterinary Medical Centre.

Horses diagnosed with PPID or EMS may develop laminitis — a disease that causes lameness and can lead to irreversible damage of the hoof structure. Early diagnosis of PPID and EMS is critical to managing these disorders and ensuring that horses don't develop laminitis or other serious health problems, says Montgomery.

In the first phase, Montgomery and her research team worked with Saskatchewan's veterinary diagnostic laboratory — Prairie Diagnostic Services (PDS) — to collect and test two sets of samples from a group of healthy horses, once in the spring and once in the fall.

"There was a statistically significant increase in both ACTH and insulin levels in the fall compared to the spring," says Dr. Paula Viviani, a WCVM graduate student and large animal medicine resident. "The association between the age of the horses and the outcomes differed seasonally, with a significant association with fall ACTH levels."

Starting in July 2022 and continuing until July 2023, the research team is collecting monthly blood samples from healthy horses and testing ACTH and insulin levels.

On Feb. 1, PDS introduced equine metabolic testing for all western Canadian veterinarians. It's welcome news that Montgomery hopes will help to encourage an uptick in diagnostic testing and an earlier diagnosis of these endocrine disorders.

Before PDS offered these diagnostic tests, western Canadian veterinarians could only send horses' blood samples to labs in Ontario or New York.

According to Viviani, hormonal biomarkers can fluctuate based on geographical region, weather conditions and the time of day.

"The value of reference ranges is twofold for diagnostic purposes and as a follow up to assess how well they [the horses] are responding to our management changes and our treatment," says Viviani.

The WCVM's Townsend Equine Health Research Fund has supported both stages of this study that is specifically addressing a regional need.

"It's important for us to be able to do these projects that directly benefit the horses here," says Montgomery. "And [to] continuously improve our standards of care, the diagnostic testing, the care we can offer and contribute to the knowledge base for us — but also for our colleagues in Western Canada."

Visit tehrf.ca to read the full story.

GALLOPING GAZETTE

WCVM student Katelyn Gilmour (right) talks about medical imaging tools with young riders.

MARG SOUTHERN HONOURED

Marg Southern of Calgary, Alta., recently received the Queen Elizabeth II's Platinum Jubliee Medal in honour of her extraordinary efforts supporting communities, sport, business and non-profit organizations. Southern, who co-founded Calgary's Spruce Meadows with her husband Ron in the mid-1970s, was a lifelong advocate of sport — including figure skating, soccer, show jumping and other equine disciplines. As well, the Southerns were among the first supporters of the Western College of Veterinary Medicine's (WCVM) Equine Health Research Fund and served as strong advocates of horse health and welfare in equine performance sports. Now 91 years old, Marg has received many awards and recognitions in her lifetime, including Canada's highest award — Companion of the Order of Canada.

IN MEMORIAM

The Equine Foundation of Canada (EFC), an organization that's dedicated to supporting equine health and education across Canada, recently lost two of its longtime leaders — Peggy McDonald and Eldon Bienert. McDonald passed away on January 7, 2023, at the age of 88 while 93-year-old Bienert died on March 28, 2023. The couple were part of Alberta's horse industry for more than 50 years and were among the first breeders to bring Morgan horses into the province. Both served on the EFC's board, and Bienert was instrumental in securing major funds to support equine-focused veterinary training and equine research at Canada's five veterinary colleges — including the WCVM. In the past 40 years, the EFC has contributed over $470,000 in scholarships for veterinary students and more than $806,000 in equipment purchases to Canadian vet colleges.

VET STUDENTS PROMOTE EQUINE EDUCATION

In early March, student members of the WCVM's Equine Club hosted nearly 200 young horse enthusiasts and chaperones for the college's Equine Education Day — a highly popular annual event that helps to promote equine health and welfare among Saskatchewan's next generation of horse owners and breeders. While the veterinary students hosted a virtual version of the education day in 2021, this was the first event to be held in person at the veterinary college since 2020 due to COVID-19 restrictions. This year's Equine Education Day included presentations and demonstrations targeting topics such as infectious diseases, lameness, colic, basic equine health care, biosecurity and veterinary medicine. More advanced riders also toured the WCVM Veterinary Medical Centre's Large Animal Clinic and the Ryan/Dubé Equine Performance Centre where veterinary students demonstrated the steps of a lameness exam and collecting TPR (temperature, pulse and respiration) from a horse.

WCVM registered veterinary technologist Mikhaela Thrasher and her Clydesdale gelding Thor visit with young horse enthusiasts.

SAVE THE DATE: 2023 EQUINE EXPO

Organizers are gearing up for the 2023 Saskatchewan Equine Expo that will take place from Oct. 26-29, 2023, at Saskatoon's Prairieland Park. Based on a partnership between Prairieland Park, Saskatchewan Horse Federation and the WCVM, the annual event aims to promote the province's equine industry and provide educational information and experiences in support of horse health and management. For more details, visit saskatchewanequineexpo.ca over the coming months.

RESEARCH IN PRINT

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

Diel de Amorim M, Dong L, Byron M, Foster RA, Klein C, Saleh M, Saleh T, Card C. "Characterization of serum and tissue oxytocinase and tissue oxytocin in the pregnant and non-pregnant mare." *Scientific Reports.* March 2023. doi: 10.1038/s41598-023-31540-9.

Wilson DG., Roquet I, Tucker ML, Carmalt JL. "A biomechanical comparison of a novel two-loop suture technique and two sutures for laryngoplasty in the horse." *American Journal of Veterinary Research.* March 2023. doi: 10.2460/ajvr.22.11.0189

Diel de Amorim M, Bramer SA, Rajamanickam GD, Klein C, Card C. "Serum progesterone and oxytocinase, and endometrial and luteal gene expression in pregnant, nonpregnant, oxytocin, carbetocin and meclofenamic acid treated mares." *Theriogenology.* Mar. 2023. 198:47-60.

Chapuis RJJ, Becker AAMJ, Dowling PM, Weese JS. "Characterisation of faecal microbiota in horses medicated with oral doxycycline hyclate." *Equine Veterinary Journal.* Jan. 2023. 55(1):129-141.

Townsend M, Fowler B, Aulakh GK, Singh B. "Expression of pentraxin 3 in equine lungs and neutrophils." *Canadian Journal of Veterinary Research.* Jan. 2023. 87(1):9-16.

Kingsley NB, Sandmeyer L, Parker SE, Dwyer A, Heden S, Reilly C, Hallendar-Edman A, Archer S, Bellone RR. "Risk factors for insidious uveitis in the Knabstrupper breed." *Equine Veterinary Journal.* Oct. 2022. doi: 10.1111/evj.13879.

Diel de Amorim M, Bramer SA, Rajamanickam GD, Klein C, Card C. "Endometrial and luteal gene expression of putative gene regulators of the equine maternal recognition of pregnancy." *Animal Reproduction Science.* Oct. 2022. 245:107064.

Kingsley NB, Sandmeyer L, Norton EM, Speed D, Dwyer A, Lassaline M, McCue M, Bellone RR. "Heritability of insidious uveitis in Appaloosa horses." *Animal Genetics.* Oct. 2022. 53(6):872-877.

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Dickey JP, Carmalt JL, Reiswig JD. "A retrospective observational cohort study on the expiration of maxillary cheek teeth infundibula in 217 horses." *Journal of Veterinary Dentistry.* Oct. 2022. doi: 10.1177/08987564221128116.

Koziy RV, Bracamonte JL, Yoshimura S, Chumala P, Simko E, Katselis GS. "Discovery proteomics for the detection of putative markers for eradication of infection in an experimental model of equine septic arthritis using LC-MS/MS." *Journal of Proteomics.* June 2022. 261:104571.

Visit tehrf.ca for more news updates.

PROVINCIAL PARTNERS EXPAND FUNDING

In response to the urgent need for more veterinarians, the WCVM's three partner provinces are providing more funding in support of the regional veterinary college. In September 2022, the Provinces of Saskatchewan and Manitoba announced increased funding to support the college's research, clinical and education programs — including the WCVM's Doctor of Veterinary Medicine (DVM) program. With additional funding, Saskatchewan will support 25 seats and Manitoba will support 20 seats in the first-year class for fall 2023.

In March 2023, the Province of British Columbia announced increased funding to permanently double the number of subsidized seats that the WCVM allocates for B.C. veterinary students. B.C. will now support 40 seats in the first-year class entering in fall 2023. As a result of these changes, all 88 first-year seats offered for the 2023-24 academic year (fall 2023 entry) at the WCVM are provincially subsidized.

Another development is the WCVM's introduction of "agriculture-focused" seats in its veterinary program. These provincial seats are designated for candidates who, based on their academic backgrounds and work experience, are more likely to practise in large animal or mixed animal clinics located in rural communities. For more information, visit the WCVM web site (wcvm.usask.ca).

HONOUR THEIR LIVES WITH THE GIFT OF EQUINE HEALTH

Pay tribute to the lives of your patients, clients and loved ones by making a donation to the Townsend Equine Health Research Fund (TEHRF) through its memorial program. Each time you give to the fund, we will send a letter to the client or loved one's family acknowledging your gift to the equine health fund.

"Our practice (Paton & Martin Veterinary Services) began to make contributions to the fund on behalf of clients when their horses passed away. We have found this to be a gratifying contribution and have been humbled by the responses that we have received from many of our clients. I think that it is very helpful for them to know that their horses have been honoured in such a fashion. The fund gives horse owners the additional opportunity to contribute to this very worthwhile cause: supporting vital research in the areas of equine health."

Dr. David Paton ***(DVM'78)***
WCVM alumnus and TEHRF donor

Questions?
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