

HORSE HEALTH

This horse health resource sheet is produced by the Western College of Veterinary Medicine's Equine Health Research Fund (EHRF).

With grassroots support from Western Canada's horse industry, the EHRF conducts vital horse health research, trains graduate students in specialized areas of horse health, provides a summer research program for veterinary students, and promotes awareness of horse health care and management among western Canadian horseowners.

Visit www.ehrf.usask.ca for more information about the EHRF.



Equine Health Research Fund

Since 1977, the Equine Health Research Fund (EHRF) has had a tremendous influence on the quality of horse health care that's available in Western Canada and around the world. The research fund has also played a major role in making the Western College of Veterinary Medicine a national centre for horse health research and specialized training.

With grassroots support from Western Canada's horse industry, the Fund annually invests more than \$100,000 in equine health research projects, a research fellowship program for graduate students, and a summer research program for undergraduate veterinary students. During its three-decade history, the Fund has:

- provided financial support to train nearly three dozen equine specialists in surgery, internal medicine, reproduction, epidemiology and pathology. Former EHRF Research Fellows are now part of an extensive network of equine practitioners and researchers across North America.
- supplied research grants for more than 150 equine health-related studies that were conducted by WCVM researchers and their collaborators. Findings from these projects have led to a variety of diagnostic and therapeutic advances in horse health care that are now used throughout the world.
- encouraged generations of undergraduate veterinary students to pursue equine-health related careers in private practice, research, academia and industry.
- promoted equine health education and awareness among members of Western Canada's horse industry through educational seminars, industry meetings and *Horse Health Lines* — the Fund's news publication.

EHRF's "greatest research moments"

In the past 30 years, the Equine Health Research Fund has supported a wide range of ground breaking studies at the Western College of Veterinary Medicine that have made a significant impact on equine health around the world. The innovative Fund has also gained a reputation for backing pilot studies in new or often-ignored areas of horse health — and for encouraging young research scientists to look at equine health issues with fresh eyes. Here's a sampling of some of the "great research moments" in EHRF's history:

- **Hyperkalemic periodic paralysis (HYPP) identified:** In 1992, Dr. Jonathan Naylor of WCVM and his research team were among the first to describe this genetic, muscular disease in Quarter horses and its familial link to one sire, Impressive. The WCVM-based research discoveries appeared in a peer-reviewed article that was published in the Journal of the American Veterinary Medical Association (JAVMA).
- **"Western Canadianized" equine nutrition research:** During the 1980s, equine nutrition specialist Dr. Nadia Cymbaluk discovered the basic nutritional needs of western Canadian horses during winter and summer months, studied the effect of pregnant mares' diets on foals' health and prevention of diseases, compared horses' digestion to cattle, measured the nutritional values of regional horse feeds and conducted standard equine digestibility studies. Based on these studies, western Canadian horse owners now have a much greater understanding of equine nutrition and how to manage their horses' diets.
- **Equine locomotion research "takes off" at WCVM:** Backed by EHRF, Dr. Hilary Clayton's interest in equine locomotion analysis flourished at WCVM. Those early studies helped to give the equine scientist a track record in sport horse conditioning, equine locomotion and equine biomechanics. Clayton's WCVM-based studies also helped her to attract more funding from larger organizations so she could be part of the chief research group for dressage and

EHRF Programs *(continued)*

show jumping at the 1992 Summer Olympics in Barcelona, Spain. Today, Clayton is considered the world's leading researcher in equine locomotion and biomechanics.

• True function of the equine guttural pouch revealed:

A multi-disciplinary team of researchers from the University of Saskatchewan used WCVM's high-speed treadmill to determine that guttural pouches — a pair of air-filled sacs in the inner tube that connect a horse's ear and throat — are responsible for heat regulation in the animal's brain. Until 2000 when their discovery was published in the prestigious science journal *Nature*, guttural pouches were the largest anatomical structure of domestic animals whose function was still unknown.

• Putting equine influenza vaccines to the test:

In the mid-1990s, a WCVM study showed that the leading injectable influenza vaccine on the market had no impact against a natural disease outbreak. A few years later, the WCVM research team was involved in North America-wide clinical trials to evaluate the efficacy of a modified live intranasal vaccine — a new product that did prevent the disease in challenged horses for at least six to 12 months. These findings had a huge impact on the veterinary profession and vaccine companies. Since then, manufacturers have made significant improvements to the injectable, killed equine influenza vaccines, and more changes are coming as researchers and companies explore more advanced technology to stimulate the equine immune system.

• **No need for corrective surgery:** In 2002, WCVM researchers showed in an experimental study that periosteal stripping — a surgical treatment developed to treat foals' crooked legs — wasn't effective and was an unnecessary expense. Horse owners could achieve the same results and save money by simply stall-confining their crooked-leg foals and regularly trimming hooves. Since then, the number of foals that undergo surgery for crooked legs has significantly decreased across Western Canada.

• Ultrasonography, the ultimate equine reproduction tool:

In the past decade, WCVM researchers have used quantitative visual analysis to identify reproductive patterns in ultrasound images. Today, many western Canadian practitioners now use parameters developed by the research team to gain a better understanding of the changes leading to ovulation in mares, and how common hormonal treatments affect the changes in these tissues and the significance.

Things have dramatically changed in three decades. Today, the region has a thriving population of equine specialists — and much of the credit for that growth goes to the Equine Health Research Fund's research fellowship program.

Nearly three dozen graduate students at the Western College of Veterinary Medicine have taken on the honoured title of EHRF Research Fellow since the first student was selected for the role in 1977. Each year, the Fund selects one or two graduate veterinarians for the fellowship program, then pays for their annual salaries and provides grants for their research projects.

With the Fund's support, former EHRF Research Fellows have gone on to work in or to establish their own equine practices in Western Canada. Others have joined the faculties of veterinary institutions across North America, while some have excelled in research, industry or in the public service.

EHRF Undergraduate Research Programs

The Western College of Veterinary Medicine has a solid track record of administering and operating excellent summer research programs for undergraduate students — and the EHRF undergraduate summer student research program serves as an ideal example of the College's success in this area.

Each summer, the Fund selects one first- or second-year veterinary student to work alongside an equine specialist on a horse health research project at WCVM. During the 16-week program, the EHRF summer research student is directly involved in planning and developing a research project, conducting experiments, collecting and summarizing results, then writing and editing a research report.

Besides hands-on research experience, the EHRF-sponsored student has access to other educational activities that are organized for all of WCVM's summer research students: leadership and communications skills workshops, tours of research centres at the University of Saskatchewan and opportunities to meet with veterinarians working in industry, research and the public service.

Many former EHRF summer research students have selected fourth-year clinical rotations in equine health, have applied for equine internships after graduation, or have pursued graduate programs in some aspect of equine health. This long-running program has helped to encourage many WCVM veterinary students to make horse health a part of their careers — whether it's in the fields of private practice, research, industry or academia. **H**

EHRF Fellowships

During the mid-1970s, you could count the number of equine veterinary specialists and researchers who were living and working in Western Canada on the fingers of one hand.