Fall 2004

Equine Guelph Update

Volume 1, Number 1

First year sets foundation for future success

Equine Guelph is a centre for equine-related research, performance and education at the University of Guelph, supported and overseen by equine industry groups. Founded in 2003, the centre has built a strong plan for the future, defined by its vision statement: **"We will be recognized as an international centre of excellence for the equine industry dedicated to the improvement of horse wellness through the provision and promotion of research, performance and education."**

The three pillars of Equine Guelph:

Research

Performance

Education

Equine Guelph benefits from the University's strong reputation, knowledge and infrastructure support, while being responsive to the needs of the equine industry through involvement of equine industry groups on Equine Guelph's Advisory Council and committees. Equine Guelph aims to strengthen communication between equine researchers, horse owners and the equine industry, so that new developments to enhance equine health and performance can be made available to owners and others in the industry.

Equine Guelph funds equine-related research through an annual funding competition. In addition, the activities of Equine Guelph include communication initiatives and education courses for the horse owner, such as the award-winning Equine Science Certificate. More information about Equine Guelph is available online at **www.equineguelph.ca**.

Funding Partners of Equine Guelph:

E.P. Taylor Equine Research Fund
Horsemen's Benevolent and Protective Association of Ontario
Ontario Harness Horse Association
Ontario Horse Racing Industry Association
Ontario Ministry of Agriculture and Food
University of Guelph

Photo by Grant Martin

Founding chair gets things on track

Byron Beeler has played a pivotal role in successfully guiding the development of the vision for Equine Guelph, with a solid base that will support the new and continuing programs. Beeler recently completed a one-year term as the first Chair of Equine Guelph's Advisory Council.

"Over the past year we have focused on building our programs for the equine industry through an Advisory Council based at the University of Guelph," says Beeler.

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UPDATE ON EQUINE GUELPH'S WORK

Research

The Equine Guelph Research Program invested over $400,000 in 18 new research projects for 2004-2005. The funding was allocated by a research committee composed of industry designates and researchers.

One study that received support will investigate the hoof's response to loading during exercise, such as the effects related to its external shape and growth rate. The outcomes of this work may help to predict and prevent hoof lameness.

Another study will examine glucosamine and chondroitin products, oral joint supplements used by many horse owners and trainers to treat osteoarthritis (degenerative joint disease). These products are unregulated in North America. The goal of this work is to investigate the quality of these products and to ensure they contain the type and amount of ingredient listed on the label.

Influenza viruses will be studied by researchers interested in the prevalence of influenza in young athletic horses and its effect on equine airways. Accurate identification of viruses during outbreaks in Ontario is essential to explain vaccination failures and will contribute to international surveillance activities, providing pharmaceutical companies with information that helps them produce suitable vaccines.

Results of current and past research projects are featured on our website and included in our education courses.

Performance

Construction of a Magnetic Resonance Imaging (MRI) facility at U of G's Ontario Veterinary College is now complete. The new equipment, specifically designed to accomodate a wide range of animals including horses, will be used in Equine Guelph research as well as for horses with clinical or performance problems. The $5 million MRI facility will be operational this fall.

Renovation of the Equine Sciences Building will begin soon as the first step in establishing an Equine Performance Centre as part of Equine Guelph's programs. The renovations include new state of the art assessment rooms, as well as a new entrance and reception area. This phase of the Equine Performance Centre will be launched in late spring, 2005.

Education

The award winning Equine Science Certificate online program has surpassed 400 students. This extensive learning community reaches around the world from as far away as Australia, Dubai, Israel, and across Canada and the U.S. representing dressage, hunter/jumper, Thoroughbred and Standardbred racing, rodeo and reining, endurance, pleasure riders, and breeders. Students include new horseowners, 30-year veterans of the industry, veterinarians and other horse enthusiasts.

The program has entered its third year and almost 30 graduates have completed their final courses and received their certificates.

This innovative program consists of six 12-week courses completed online.

For more information please visit: **www.EquineScienceCertificate.com.**

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"The equine industry has currently invested in research, education and communications and is clearly driving this initiative."

Beeler is very optimistic about the role that Equine Guelph will play in the future.

"The equine industry has currently invested in research, education and communications and is clearly driving this initiative."

- Byron Beeler

"Now that we have the 'wheels on the buggy', Equine Guelph has a very promising future. This is an exciting development and an important first step for all those involved in the equine industry in Ontario and who are committed to improving the health and well-being of our equine athletes.".

At a recent meeting, Beeler's leadership qualities were highly praised by Council members and he was thanked by the industry representatives for his many contributions.

Recently retired as President of Novartis Animal Health Canada Inc., Beeler is also a past president of the Royal Agricultural Winter Fair, and past Chair of the Canadian Animal Health Institute. Beeler has been honoured with an impressive list of distinguished awards: The Canadian Seed Growers Association honoured him with a Life Membership in 1989. The Ontario Institute of Agrologists named him a Distinguished Agrologist in 1995 and in the same year he was made a Fellow of the Agricultural Institute of Canada. Internationally, he received the Novartis Business Excellence Award in 1997. In 2001, the Nova Scotia Agricultural College named Beeler its Alumnus of the Year, and the Canadian Animal Health Institute made him an Honorary Life Member in 2003.

- Susan Raymond

Cutting edge MRI technology will benefit horses

New equipment offers new opportunities for both researchers and horses

When Dr. Howard Dobson, a radiologist at OVC's Veterinary Teaching Hospital, is asked what excites him most about OVC's new Magnetic Resonance Imaging (MRI) facility, his eyes light up.

"I'm thrilled that this is finally happening", he says. "After more than 10 years of searching for funding, the facility is now constructed. Every step was exciting and now I am looking forward to using the MRI unit."

Renovations and construction necessary to house the 40-tonne MRI magnet and allow for animals to be temporarily accommodated while awaiting imaging began last fall, and the completed facility passed into OVC hands at the end of September.

The MRI equipment will allow new research efforts, and clinical diagnosis and treatment of animals by giving clinicians the best possible detail of soft tissue inside an animal's body.

MRI uses a powerful magnetic field to create images. The MRI's significance as a diagnostic tool is its ability to produce a "living gauge" of bone, soft tissue, and cartilage. Performance horses will benefit from its very specific diagnostic capabilities.

MRI is very different from other diagnostic technologies because subtle changes of a specific area of the body are shown very clearly. For example, bone bruises are not normally detected on radiographs or nuclear scintigraphy (bonescans) but for an elite athlete can still be the source of poor performance. The subtle change caused by a bone bruise is detected using MRI.

The MRI facility was carefully planned to accommodate a wide range of animal patients. The unit, which is the same as one used for humans, can take images of a whole foal. The MRI unit can image the head and upper part of the neck of an adult horse, as well as up to the knee of the front leg and the hock in the rear. General anesthetic is required for horses undergoing MRIs.

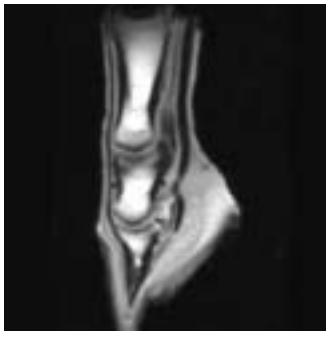
Common equine patients of the MRI unit will include:

- High performance animals with lameness
- Animals with head disorders including neurological, sinus and tooth disorders
- Neonatal foals with suspected neurological disorders

Performance horses will not only benefit from the very specific diagnostic capabilities of MRI but the results of these clinical cases will contribute to research in developing a better understanding of, for example, arthritis and navicular disease.

The MRI equipment and renovations and construction to house it were funded by OVC's Pet Trust Fund, the Canada Foundation for Innovation and the Ontario Innovation Trust.

- Susan Raymond



Above: OVC's MRI unit, ready to accept its first patient.

Right: An MRI image of a healthy horse's foot. The MRI's significance as a diagnostic tool is its ability to produce a "living gauge" of bone, soft tissue, and cartilage.

How does MRI technology work?

All of our bodies are composed of a large amount of water, which is made up of hydrogen atoms. These atoms are normally in a random pattern or orientation. When exposed to a strong magnet (MRI) and the subsequent high energy radio frequencies, their orientation changes much like a child's spinning top that tips to one side and then slowly returns to an upright position. The degree of rotation and the rate at which the hydrogen molecules return to their normal orientation is dictated by the nature of their chemical bonds, which illustrates the type of tissue. During the action of returning to random patterns, the high energy radio frequencies are reemitted. The computer uses this information to create a picture.

New cure for horses with irregular heartbeat

Developed with support from Equine Guelph, a new technique for treating atrial fibrillation (also known as irregular heartbeat) uses catheter-mounted intracardiac electrodes to deliver a high-voltage jolt to the heart. Dr. Physick-Sheard and graduate student Dr. Kim McGurrin, Clinical Studies, and Dr. Dan Kenney, Veterinary Teaching Hospital, teamed up to develop the new treatment option.

The traditional treatment for atrial fibrillation is a drug treatment that has many side effects as well as a long recovery time.

The technique developed involves threading two catheters through the veins of a horse into the right atrium and pulmonary artery. The catheters, fitted with electrodes administer a shock which has been effective in curing atrial fibrillation in all but one of the 27 horses treated to date.

Quick recovery time from treatment is one of the advantages of this new approach. While horses that undergo drug treatment for atrial fibrillation must abstain from any activity for seven to ten days following treatment, horses whose owners choose electrical treatment can undertake light work within two days, and can resume their regular training schedule within one week.

The new technique also offers an alternative for the 10 to 15 percent of horses who do not respond to the drug treatment or cannot tolerate the agents used.

Dr. Dan Kenney (left), Dr. Kim McGurrin and Dr. Peter Physick-Sheard pose with Turner, the first horse treated using their new technique.

- Photo by Martin Schwalbe

About Equine Guelph

Equine Guelph is the horse owner and caregiver's centre at the University of Guelph. We are dedicated to improving the health and well-being of horses through the provision and promotion of research, performance and education.

We welcome your views and encourage you to contact us with your comments or suggestions. Anyone wishing to excerpt Equine Guelph Update **should contact:**

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Equine Guelph also publishes a bi-monthly e-newsletter, Horses@Guelph. **To subscribe to the e-newsletter, please visit www.equineguelph.ca**

Equine Guelph Donation Form

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❑ Area of Greatest Need ❑ Research ❑ Performance ❑ Education

Equine Guelph also offers a memorial program to honour deceased horses or people. Please call the office for details.

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