

For the Good of the Horse

Grayson-Jockey Club Research Foundation Funds Important Equine Research Projects

By Leslie Guttman

JONATHAN PALMER

Daniel Youngstrom, a doctoral student in biomedical and veterinary sciences at Virginia Tech, envisions the day when severe or chronic tendonitis in sport horses and Thoroughbreds won't necessarily lead to retirement. For more than three years Youngstrom has been working on a custom-made bioreactor, a specialized machine designed to create super-efficient stem cells that will help repair a horse's injured tendon. The machine mimics a fetal environment, encouraging cells to grow tendon tissue.

Youngstrom, 25, got a major boost this year when he received a Storm Cat Career Development Award from the Grayson-Jockey Club Research Foundation. "It's been a huge, huge asset whose impact is difficult for me to state," said Youngstrom. "To have the money to travel, to meet with other scientists, to use the best equipment possible, and to

know this is going to improve animals' lives — and possibly people's lives — are so beneficial."

Youngstrom's hope is that one day soon a horse with a core tendon lesion will simply have its bone marrow drawn, the cells processed in the bioreactor, and then reinjected in the horse to help tendon repair.

For more than seven decades the Lexington, Ky.-based Grayson-Jockey Club Research Foundation has funded pivotal equine research projects at 40 universities (primarily in North America, but including England and Australia), resulting in everything from the creation of the first vaccine for equine influenza to advancements in defining the nature of the neurological disease wobbler syndrome. Since 1983 the foundation has funded 299 projects totaling \$19.9 million, and since 1999 every project has resulted in the publication of its work in a peer-reviewed journal. Funding comes from private sources: memberships, contributions, and the foundation's portfolio.

"We wouldn't come to these results without a brilliant and dedicated community of equine researchers," said Ed Bowen, president of the Grayson-Jockey Club Research Foundation. Some of the milestones Bowen cites include:

- Working in partnership with the state of Kentucky, to help identify the eastern tent caterpillar as the cause for the epidemic known as mare reproductive loss syndrome in 2001. (Mares were ingesting the caterpillars, and the insects' fuzzy pelts were believed to be puncturing the mares' alimentary tracts.) The plague that hit the Bluegrass resulted in the death of 550 late-term foals. In addition, between 2,000 to 3,000 mares aborted in early pregnancy.

- Funding research by veterinarian Larry Bramlage in 1978 at The Ohio State University that contributed to his development of the groundbreaking fetlock arthrodesis procedure. The operation, which fuses the fetlock joint, has saved countless horses' lives. (Bramlage is also a member of the foundation's board of directors.)

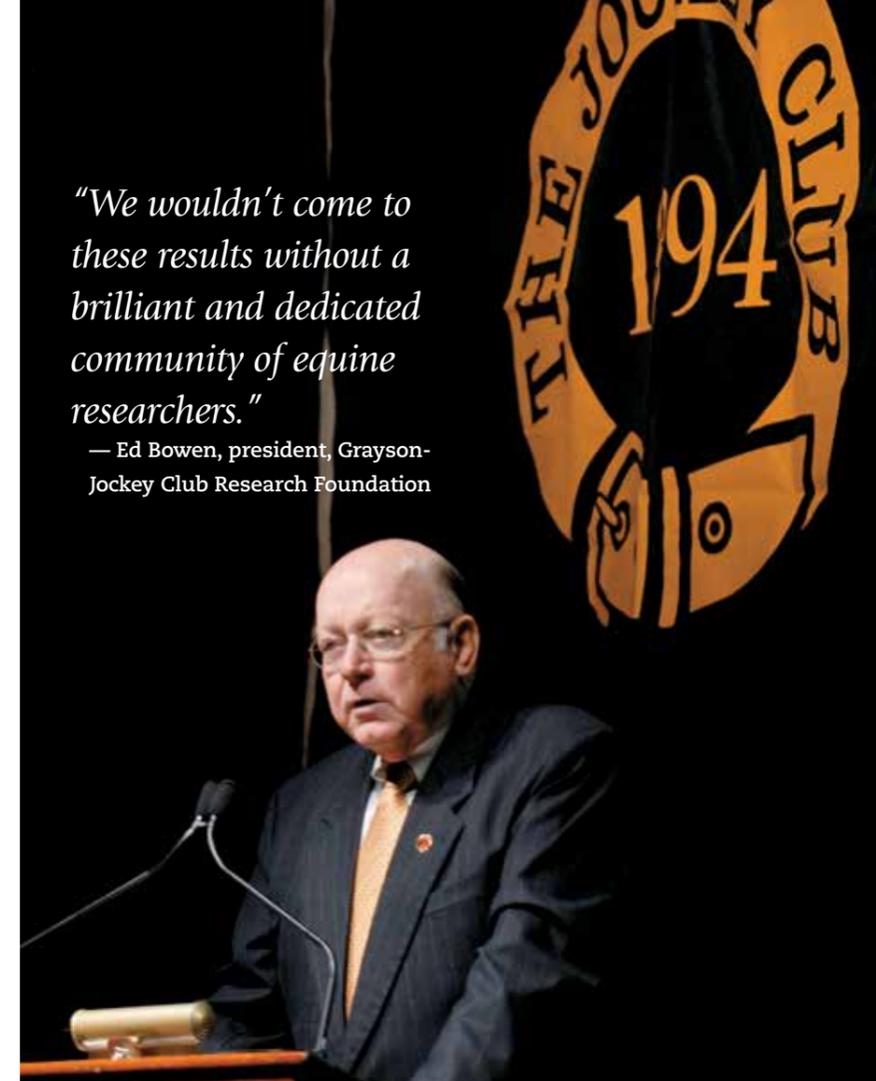
- Developing a vaccine for equine viral arteritis (research began in 1953). EVA is contagious and can cause pregnant mares to abort, as well as the foals to die. Stallions can also become long-term carriers.

The foundation originated in 1940 as the Grayson Foundation, named after Admiral Cary Grayson. Grayson was a former personal physician to President Woodrow Wilson and a big racing fan. Legend has it that on Grayson's urging, Wilson took a break from negotiating the Versailles Peace Treaty in 1919 to join Grayson for racing at Longchamp racecourse in Paris' Bois de Boulogne. (The Grayson Foundation merged with The Jockey Club's research foundation in 1989.)

In its early days one of the foundation's initiatives was funding research to keep military mules and horses healthy.

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Opposite, UK researcher Martin Nielsen, left, and David Horohov are currently studying whether deworming affects the efficacy of vaccination in horses. Below, Dr. Larry Bramlage has made important strides in equine surgery with funding from the Grayson-Jockey Club Research Foundation.



ANNE M. EBERHARDT

As the world changed, so did the foundation's focus. One of today's priorities is racehorse and track safety. For example, the launching of The Jockey Club's Equine Injury Database in 2008 grew out of veterinarian Mary Scollay's presentation at the first Welfare and Safety of the Racehorse Summit. The foundation was a key partner with The Jockey Club in creating the summit, of which there have now been four. Bowen said another research "hero" is veterinarian Sue Stover of the University of California at Davis. Stover's work has shown that the majority of what appear to be spontaneous injuries at racetracks are really the result of pre-existing problems. Bowen hopes Stover's research will lead to



The Grayson-Jockey Club Research Foundation's aim is to improve the health of all breeds and horses participating in myriad disciplines.

more pre-race inspections at tracks in states that do not conduct them.

Foundation-funded research by a team including Stover and Dr. Al Kane at UC Davis also revealed in 1995 that high toe grabs on a Thoroughbred's front shoes make a horse 16 times more likely to suffer a catastrophic injury. Many trainers had previously believed the toe grabs were safe and gave the horse traction. As a result of the work, 19 states have adopted rules limiting front toe grabs to 2 millimeters, and two states have adopted rules limiting them to 4 millimeters.

While it's true that most of the foundation's financial support comes from the Thoroughbred industry, Bowen said, "most of what we do is applicable to your child's pony, to your racehorse, to your broodmare. We are here for all horses, not just racehorses." Bowen gives the example of the outbreak of equine herpes virus in the cutting-horse world in 2011 and how much of the subsequent knowledge and management of that crisis came from projects funded by the foundation.

Dr. David Horohov of the University of Kentucky's Gluck Equine Research Center has been the recipient of eight of the foundation's grants. Some of his work has focused on how exercise affects the immune response of horses. Horohov foresees the day when a blood test identifies biomarkers to help design individualized training and conditioning programs optimal for a horse's specific profile.

Last year Horohov received a Grayson-Jockey Club grant focusing on another area: whether non-steroidal anti-inflammatory drugs (NSAIDs) affect the immune response to vaccination in horses. Some veterinarians routinely prescribe NSAIDs before vaccinating as a way to avoid an adverse reaction to the vaccine. But Horohov, along with fellow Gluck researcher Dr. Thomas

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KIRK SCHLEA

Over the years the foundation's mission has changed. A priority today is racehorse and racetrack safety.

Chambers and veterinary student Whitney Zoll (now at Michigan State University), actually discovered that NSAIDs reduced the efficacy of a commercial influenza vaccine.

“If it weren’t for Grayson, less than half of what’s been done in equine research would have been accomplished,” Horohov said. Historically, as the horse’s role for military and agricultural use in our country faded, so did federal dollars for equine research. Coupled with today’s struggling economy and universities’ cutting back in innumerable ways, the foundation’s work is crucial for creating long-term, life-saving solutions to equine health problems. For example, the foundation is dedicated to funding cutting-edge research into helping resolve the mysteries and deadly nature of laminitis.

Dr. Dean Richardson, professor of equine surgery at the University of Pennsylvania’s New Bolton Center, has previously served on the foundation’s Research Advisory Committee, which conducts a



COURTESY GRAYSON-JOCKEY CLUB RESEARCH FOUNDATION

Founder Admiral Cary Grayson

stringent process for evaluating proposed projects. Richardson said people might

not realize that the foundation’s impact stretches far beyond the horse.

“The regulatory hurdles are enormously lower in horses than they are in humans,” said Richardson, who became well known to the world in 2006 for being Barbaro’s surgeon. (The 2006 Kentucky Derby winner shattered a bone in his right hind pastern in the Preakness and ultimately had to be euthanized.) “There’s a huge amount of work being done in regenerative medicine. Many of the answers on stem cells ... will provide significant information to the human medical condition.”

When it comes to encapsulating the foundation’s mission and its relationship with universities and researchers, Bowen likes to cite a quote he attributes to Paul Mellon, the late philanthropist and Thoroughbred racehorse owner/breeder. “If keen minds and sophisticated equipment are the weaponry of research, philanthropy is the supply line. Victories are not achieved by one without the others.” 