

Barbaro Injury Highlights Need for Laminitis Research Funding

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on behalf of the AAEP Foundation, Inc.*

As viewers around the world watched Barbaro pull up after the start of the 2006 Preakness Stakes, it was apparent to even the casual racing fan that the Kentucky Derby winner had suffered a serious injury. Veterinary examinations later revealed multiple life-threatening fractures to Barbaro's right hind leg. His quest for the Triple Crown turned into a fight for his life, bringing much public attention to the fragility of horses' legs and feet.

From the outset of treatment, Barbaro's doctors emphasized that the colt's recovery would be dependent upon the successful healing of his bone fractures as well as the prevention of laminitis in his opposite healthy leg. This fear of laminitis was realized seven weeks later, when it was announced that Barbaro had developed the disease in his left hind foot. The silent killer that affects horses around the globe was now a severe complication in Barbaro's otherwise excellent recovery.

Despite the marvelous veterinary progress made in equine surgery, anesthesia, and the design and development of state-of-the-art implants for fracture repair, the ultimate outcome for horses with life-threatening injuries often depends upon effectively treating, and ideally preventing, laminitis.

Laminitis, sometimes referred to as "founder," is a severely debilitating, tremendously painful disease of the soft tissues (laminae) that connect the hoof wall (the outer part of the hoof that you see) to the coffin bone (the skeletal bone that exists inside the hoof). Laminitis typically develops in either both front feet (most common), all four feet, or in the foot opposite to a limb with a severe injury or infection.

The exact cause of laminitis is not known, but many factors increase its risk of occurrence, including but not limited to gastrointestinal tract disease (colic and diarrhea), pleuropneumonia, retained placenta and metritis in mares, ingestion of excessive carbohydrates (grain overload), grazing lush pastures, and endocrinopathies (metabolic syndrome or hormonal imbalance). And as mentioned before, excessive weight bearing and overload of the healthy limb opposite a limb affected by severe pain and lameness, as witnessed in Barbaro's case, is another frequent cause of laminitis.

Laminitis is not new. Almost from the time of recorded history, and at least since diseases of horses have been recorded, laminitis has plagued horses and created an emotional and often financial toll on their owners and caregivers. It can occur in any breed of horse, of any size, at any age. It has been estimated that 15 percent of horses in the United States are afflicted by laminitis over the course of their lifetime. As many as 75 percent of the afflicted eventually develop severe or chronic lameness and debilitation. The legendary Secretariat, winner of the 1973 Triple Crown, developed severe laminitis later in life and eventually succumbed to this horribly painful disease.

Despite substantial research over the last three decades that has investigated numerous mechanistic pathways involving the onset and development of laminitis, a complete knowledge and understanding of this disease has yet to be achieved. Effective preventative and therapeutic management strategies continue to remain elusive. A complicating factor is that the disease process is encased within the hoof wall, and many technologies used in other research areas are not easily useful or adaptable for effective study of this disease. The technology and resources required to advance the knowledge in this area are expensive. And because the disease is unique to only horses, the research technology must be developed exclusively for the horse.

The high prevalence of laminitis among horses, combined with the incomplete understanding of the disease along with the emotional and economic costs, all contribute to the extreme frustration felt by veterinarians, owners, trainers, caregivers and the general public. A survey of members of the American Association of Equine Practitioners (AAEP) listed laminitis as the most important disease afflicting horses and the highest priority for further research. A group of leading laminitis researchers brought together in 2004 by the AAEP to examine the issue concluded that laminitis research is woefully under funded. The United States Department of Agriculture also has listed laminitis as a priority area for research funding.

Similar to heart disease, diabetes and cancer research in humans, biomedical research addressing laminitis is highly complex and extremely expensive. Although it is difficult to accurately calculate the total funding that will be necessary to solve the underlying causes of laminitis, researchers predict that substantial progress can be made within the next five years with a working research budget of \$10 million. Funding to this degree is necessary for veterinary scientists to make a significant impact on reducing the prevalence and progression of laminitis while improving the outcome of horses that develop the disease.

The equine veterinary community is issuing a collective call for support in this endeavor. Several research foundations, including the American Quarter Horse Foundation (www.aqha.com/foundation), the Grayson-Jockey Club Research Foundation (www.grayson-jockeyclub.org), and the Morris Animal Foundation (www.morrisanimalfoundation.org), have all listed laminitis as one of their priorities for research funding. Donations to these organizations will help research groups collectively solve this devastating disease. Please contact the AAEP Foundation (www.aepfoundation.org) for information about how to make donations for equine research. The AAEP Foundation may also be reached by calling 1-800-443-0177 (within the U.S.) or at 859-233-0147, ext. 220.

While Barbaro and his doctors wage battle against laminitis, hundreds of additional horses will be diagnosed with the disease each day. Funding laminitis research is vital to unraveling the unanswered questions about the disease and developing reliable preventative and therapeutic measures, for all of the equine population.

The AAEP Foundation, Inc., a 501(c)3 organization, was created in 1994 as the charitable arm of the American Association of Equine Practitioners (AAEP), the world's largest professional association of equine veterinarians. The AAEP Foundation's mission is to improve the health and welfare of the horse through support of research, education, benevolence and the equine community.

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