

Cooling the Threat: How Grayson-Funded Research Is Changing the Fight Against Laminitis

Few diagnoses strike fear into a horse owner's heart like laminitis.

This painful and often devastating disease damages the sensitive tissues that connect the hoof wall to the underlying coffin bone. Laminitis not only threatens a horse's athletic career but remains one of the leading causes of premature death in horses, second only to colic.

Laminitis can affect horses of all breeds and disciplines and generally falls into three categories:

- **Endocrine-related laminitis**, associated with Equine Metabolic Syndrome (EMS) and Pituitary Pars Intermedia Dysfunction (PPID or Equine Cushing's Disease)
- **Sepsis-related laminitis**, which can develop following serious illnesses such as colitis, pneumonia, metritis, or grain overload
- **Supporting-limb laminitis**, which occurs when a horse bears excessive weight on one limb following an injury to the opposite leg

For decades, veterinarians have focused primarily on treating laminitis after its onset. Today, thanks to groundbreaking research funded by the Grayson-Jockey Club Research Foundation, researchers are developing ways to prevent the disease before irreversible damage occurs.



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COOLING THE THREAT

How Cryotherapy Helps Prevent Laminitis

HOW DOES COOLING HELP?

-  Slows metabolism inside hoof tissues
-  Reduces inflammation
-  Protects delicate lamellar cells
-  Prevents weakening of hoof attachments
-  Preserves healthy blood flow and tissue function

WHAT DOES CRYOTHERAPY LOOK LIKE?



 Ice boots

 Cold-water immersion

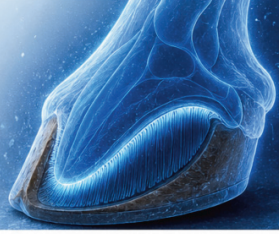
 Ice sleeves

 Ice wraps

 Continuous cooling systems

RESEARCH SHOWS

-  Prevents laminitis in septic horses
-  Reduces damage during acute laminitis
-  Improves recovery when started early
-  Prevents endocrine-related laminitis in research models





Cryotherapy is a powerful tool in the fight against laminitis. When used early, it can protect the hoof, improve outcomes, and save horses' lives.

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Advancing Health. Improving Lives.

A Simple Concept with Powerful Results

With the benefit of strong collaborations with fellow researchers, Dr. Andrew Van Eps, Associate Professor of Equine Musculoskeletal Research at the University of Pennsylvania's New Bolton Center, and now-retired James Belknap, DVM, PhD, DACVS, who had been researching laminitis mechanisms at the tissue level at The Ohio State University, led multiple Grayson-funded studies, including investigating one of the most promising advances in laminitis prevention and treatment: cryotherapy.

Through cryotherapy, or therapeutic foot cooling, Dr. Van Eps and his team have demonstrated that cooling a horse's lower limbs can significantly reduce the risk of laminitis development in high-risk horses and improve outcomes when applied during the earliest stages of the disease.



Dr. Andrew Van Eps, Associate Professor of Equine Musculoskeletal Research at the University of Pennsylvania's New Bolton Center

Experimental studies have shown that cryotherapy can:

- Prevent laminitis in septic horses suffering from illnesses such as colitis and pneumonia
- Reduce damage associated with acute laminitis
- Improve outcomes when used as an early intervention
- Prevent the development of endocrine-related laminitis in research models

Why Cooling Works

Through years of investigation, researchers have identified several ways cryotherapy protects the hoof.

Cooling dramatically reduces metabolic activity within the sensitive lamellar tissues of the foot, decreasing energy demands while preserving normal cellular function. It also suppresses inflammatory signaling and inhibits cellular changes that contribute to weakening and separation of the hoof structures.

Together, these effects help protect the foot during periods when horses are most vulnerable to laminitis.

What Does Cryotherapy Look Like?

The goal of cryotherapy is simple: maintain continuous cooling of the lower limb from the knee or hock downward during periods of high risk.

Methods may include:

- Ice boots
- Ice pack wraps
- Ice sleeves
- Standing in cold water
- Specialized systems that continuously circulate chilled water



While researchers continue working toward more practical and efficient cooling systems, studies have consistently demonstrated that cryotherapy is both safe and effective when implemented appropriately.

Real Horses, Real Success Stories

The impact of this research extends far beyond the laboratory. Several high-profile Thoroughbreds have benefited from cryotherapy-based treatment protocols, including Grade 1 winners Lady Eli, Bal a Bali, Paynter (*right*) and Lord Nelson.

Lady Eli and Bal a Bali successfully returned to racing following their recovery. Others, including Paynter and Lord Nelson, were able to transition comfortably into breeding careers, preserving both their quality of life and their contributions to the breed.



Research That Protects Every Horse

Laminitis remains one of the most challenging diseases in equine medicine, particularly for horses affected by EMS and insulin dysregulation. As Grayson-funded researchers continue to investigate innovative approaches — including cryotherapy, insulin regulation therapies, and metabolic disease prevention — the future is becoming brighter for horses at risk.

"Every advancement in laminitis research brings us closer to preventing one of the most devastating diseases affecting horses. Research is transforming our understanding of the disease and providing new opportunities to protect horses before they suffer permanent damage."

Inspired by the work of Dr. James K. Belknap



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Research update from Holly White,
Director of Development