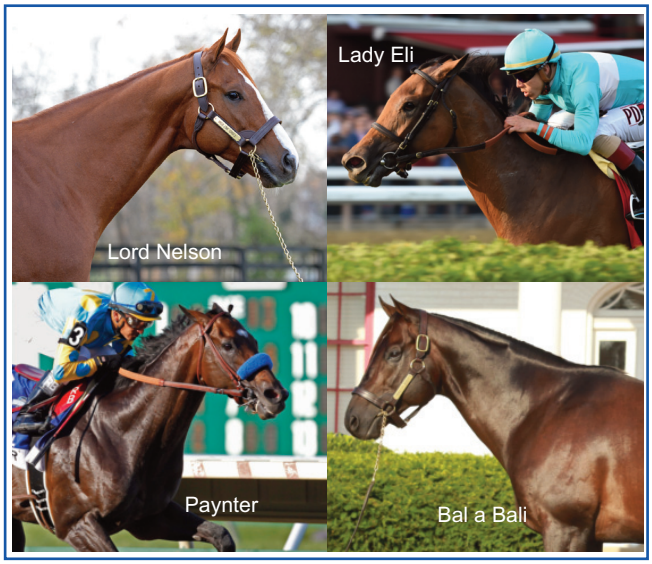
Research Update: **LAMINITIS**

Ongoing and recent projects funded by
Grayson-Jockey Club Research Foundation



Dr. Andrew Van Eps, associate professor of equine musculoskeletal research at the University of Pennsylvania School of Veterinary Medicine, has conducted multiple projects funded by Grayson-Jockey Club Research Foundation on laminitis and the efficacy of cryotherapy (foot cooling) as part of treatment.

The Threat--- Laminitis, a disease in which the tissues that attach the hoof to the underlying coffin bone become damaged and inflamed, can be devastating for both horse and owner. It not only leads to loss of performance but is second to colic as the biggest cause of premature death in horses. There are three "types" of laminitis, first Endocrine-related, generally occurs secondary to equine metabolic syndrome and pituitary pars intermedia dysfunction (PPID, equine Cushing's disease). Secondly, Sepsis-related, develops following a systemic illness such as colitis (inflammation of the colon), metritis (inflammation of the uterus), pneumonia, grain overload, etc. And lastly, Supporting-limb laminitis develops after a musculoskeletal injury in the contralateral (opposing) limb, causing the horse to preferentially bear excessive weight on the supporting limb.

Research--- Recent research indicates that cryotherapy (foot cooling) may help to prevent laminitis as well as improve outcomes for horses suffering acute laminitis when used as first aid. Experimental studies have shown that cryotherapy can prevent laminitis specifically in septic patients (e.g. colitis, pneumonia) and can also be an effective first aid treatment for this type of laminitis even after lameness has developed. Recently, researchers have shown that cryotherapy can also prevent the development of endocrine-related laminitis in an experimental model. The researchers have studied the mechanisms of cryotherapy and have identified some of its key effects:

1. Reduced metabolic activity– energy requirements and consumption are dramatically decreased in the lamellar tissue of the feet, but basic functions and energy balance are preserved. This may be the key to inhibiting pathologic processes in laminitis.

2. A profound inhibition of inflammatory signaling within the feet.

3. Inhibition of growth factor signaling and cell proliferation within the lamellae that normally contribute to stretch and damage within the feet

What exactly is cryotherapy treatment?

The goal is to cool the feet consistently while the horse is at high risk of laminitis development, or for the first few days after development as a first aid therapy. Effective foot cooling requires application of a cooling device from the knee/hock down. Basic methods include ice sleeves, ice pack wraps, ice boots; or even tethering a horse in a stream or pool of cold water for an extended period. Other methods involve the recirculation of refrigerated water using recirculating pumps, e.g. the Equine Spa as seen below in the picture with Bal a Bali. An ideal method that allows consistent and continuous cooling for several days is yet to be developed, however the safety and efficacy of cryotherapy has been established.

What Is Being Learned--- Cryotherapy can be used to prevent laminitis in sick (septic) horses and is a rational first aid therapy in acute cases. In general, owners and veterinarians can follow these four treatment strategies to help horses suffering from acute laminitis:

1. Apply cryotherapy as first aid to limit disease progression

2. Provide pain relief and reduce inflammation with non-steroidal anti-inflammatory drugs

3. Restrict the horse's movement via stall rest

4. Pursue orthotic/corrective shoeing

Cryotherapy has helped many horses, including grade 1-winning Thoroughbreds Bal a Bali, Lady Eli, Lord Nelson, and Paynter, overcome laminitis. Lady Eli and Bal a Bali returned to successful racing careers, while the others were saved to become pasture-sound breeding animals.

COURTESY WESTON DAVIS

At left, Bal a Bali winning the May 9 American Stakes at Santa Anita in his North American debut; inset, Dr. Vernon Dryden of Rood & Riddle Equine Hospital; above, Bal a Bali in his cold water spa at the Palm Beach Equine Clinic

Watch a video detailing the recovery of Paynter through the use of cryotherapy to save his life, as he now stands at stud at WinStar Farm: ***Click for Link***

Here Van Eps details his ongoing work with laminitis: ***Click for Link***