

Predicting Laminitis

Project Title: “Acute Inflammatory Changes in Skin and Laminar Tissue during the Onset of Acute Laminitis”

University: University of Georgia

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The Need

Laminitis (or founder) is a severe inflammation of the tissue (sensitive laminae) that connects the coffin bone to the hoof wall. It occurs for a number of reasons -- as a complication of injury or disease, reaction to feed, etc. It is extremely painful, treatments are often ineffective, and the condition is regularly career and life-threatening.

Little is understood about the mechanisms within the body that cause laminitis. There is also no current method of diagnosing its onset prior to clinical signs, which further complicates efforts to manage it.

The Goal

Because laminitis occurs alongside other diseases or conditions, researchers believe that it is actually a local expression of a condition found throughout the body.

The hoof is the integument (or epithelial covering) for the foot, just as the skin is the integument for the body. Studies have shown that the inflammatory response that occurs in the hoof during the onset of laminitis also occurs in the skin.

The hoof’s reaction to the inflammatory processes differs from the skin because of the hoof’s wall and its weight-bearing function. Inflammation inside the rigid hoof wall increases interstitial pressure and restricts blood supply to the hoof tissue. Add to that the pressure from the horse’s weight and you have the complications of laminitis.

For this study, veterinarians will reproduce laminitis in horses by administering extract of black walnut tree heartwood. They will then study and characterize the early inflammatory phase in both the skin and hoof.

By doing that, they hope to eventually be able to use skin samples to predict the onset of laminitis in at risk horses. That would allow for more effective, early treatment of the condition.

The Results

Pending