Effects of Wedged Industrial Styrofoam on Forefoot Center of Pressure and Load Distribution in Normal Horses

Project Summary

There are numerous, unsubstantiated treatments for acute laminitis. This proposed study is a follow up to a study which examined the validity of a widespread treatment for the acute phase of laminitis. Industrial Styrofoam® insulation sheeting ("blue foam") is commonly placed on the solar surface of the foot with the belief it redistributes the weight borne from the dorsal third to the palmar two-thirds of the foot. Clinically, it appears to decrease pain associated with laminitis. Using a state-of-the-art, high-resolution, pressure sensing system we will evaluate the center of pressure and load distribution characteristics of the forefeet in horses with and without the application of wedged industrial Styrofoam® insulation sheeting. We hypothesize that the center of pressure and load distribution in the forefeet of horses will be altered with placement of commercial blue foam effectively transferring the stress on the lamina by shifting the weight bearing surface from the wall primarily to the sole and palmar aspects of the foot. The center of pressure will be identified utilizing the coordinate system incorporated into the pressure sensing system. Solar distribution patterns will be quantified utilizing total contact surface area. The results of this study will be used for further research investigating this treatment method applied to horses experiencing clinical signs of acute laminitis. Additionally, the results may be valuable in studies investigating the application of various forms of Styrofoam® pads and the biomechanical aspects of other shoeing treatments and sole support mechanisms for horses suffering from acute laminitis.

Jennifer A. Schleining, DVM, MS
Diplomate, ACVS, Large Animal Clinician
2418 Lloyd Veterinary Medical Center
Iowa State University
Ames, IA 50011
515-294-1500