

Hoof Comfort for Horses

Walking, racing, and jumping inflict a great deal of stress on a horse's legs and hooves. Linda Greenlaw, founder of Aquila Equine Enhancement Products, Inc., of Woburn, Massachusetts, developed magnetic hoof protector pads, called "Power Pads," which ease the discomfort caused by this stress. Similar to a person's sneakers, the company's power pads support and cushion the impact on the horse's hooves and legs to provide comfort and protection against injuries. Tested by NASA for strength and durability, the power pads are quickly gaining recognition in the field as a solution for sore hooves.

Aquila Equine Enhancement Products obtained NASA's help by taking advantage of the technology development assistance available to small businesses from NASA's Marshall Space Flight Center. The staff at Marshall's Technology Transfer Office introduced the company to Deborah Dianne Schmidt and Anthony J. Schaffer of the Center's Materials and Processing Laboratory, who agreed to analyze the power pads.

Schmidt conducted fatigue stress analysis of the magnetic pads. While these tests showed that the pads' composite material and magnetic insert material were satisfactory, Schmidt found that a modification in the placement of the magnet was necessary. Based on her analysis, she was able to recommend an optimal configuration for the durability of the entire pad design. Schmidt also suggested using an injection process to seal the magnet into the pad, rather than applying bonding agents.

Placing the pads on the horse's hooves does not interfere with the horse's natural movement or flexibility and can be compared to a person changing into athletic shoes for a sporting event. The pads are cut to a suitable size, and then mounted onto a horse's hooves using conventional shoeing methods. Once attached, the pads protect the hard and soft parts of the hoof by cushioning blows against the hard ground. The pad's design also protects the vulnerable "heel" of the hoof. They are a cost-effective way to protect a horse's hooves since they can be reused.

With magnetic inserts to increase blood circulation, power pads protect a horse's hooves and legs against injury while providing support and comfort.



The magnetic material presents several additional benefits. Research has shown that magnetic devices improve blood flow to damaged tissue by acting on the blood's iron. By stimulating the damaged tissue's fluids, the magnet helps to speed the elimination of waste products, reduce swelling, and restore normal function to the area. Since magnetic material inserted directly into the hoof wall can cause toxic poisoning, the non-invasive power pads are the best solution to provide the horses with magnetic therapy in their daily work routines.

Aquila Equine Enhancement Products has the support of several master farriers, professionals who shoe horses. Several New England farriers who used the pads on their horses in "field testing" reported that the pads cause hooves to grow more resinous, resulting in a stronger fiber. This makes the pads a

good option for correcting problems such as "brittle" or "cracked" hooves. Power pads have also proven helpful with navicular and arthritic horses.

The power pads are currently being tested at several veterinary schools, including Tufts University, Virginia Polytech Institute, the University of Tennessee, Miner Institute, and Cornell University. The Brotherhood of Working Farriers Research Center in LaFayette, Georgia, which offers service to the equine industry in solving difficult hoof problems, is also working with the pads. ❖



Power pads are fitted onto a horse's hooves using conventional horseshoe nails or glue. Metal horseshoes are then fitted over the pads.