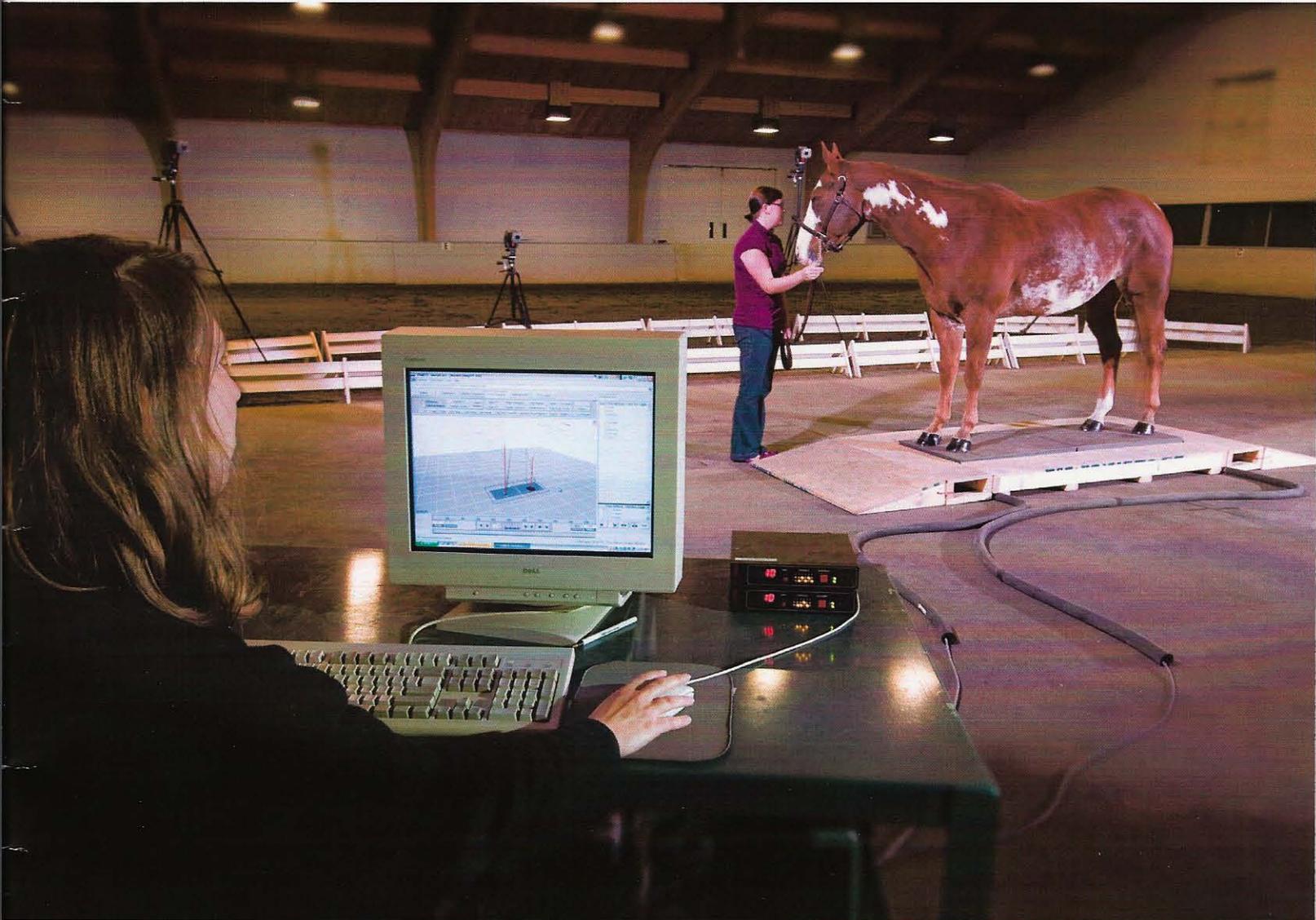


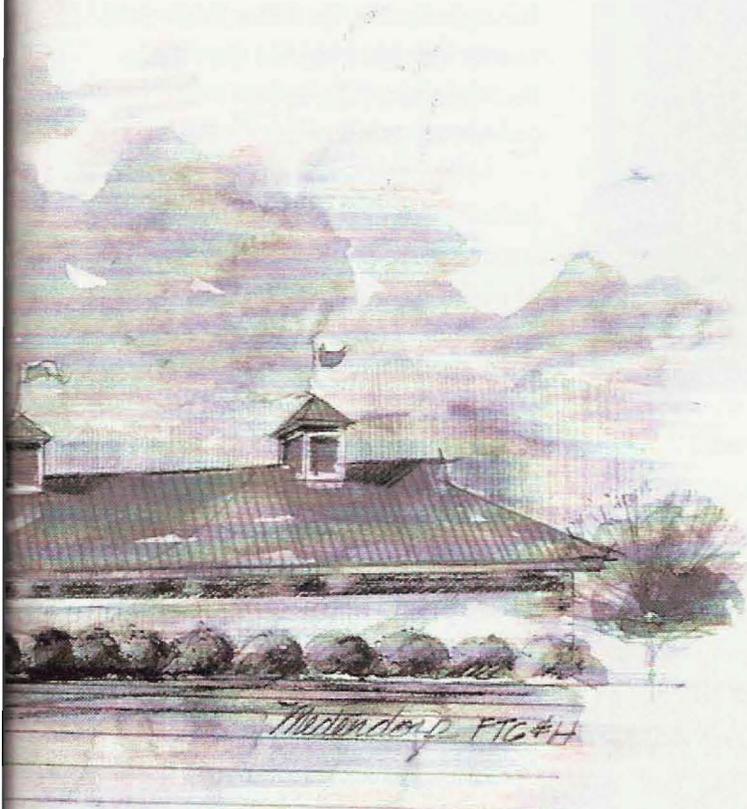
Mary Anne McPhail EQUINE PERFORMANCE CENTER



2008 ANNUAL REPORT

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THE INDEPENDENCE SADDLE: A NEW CONCEPT IN SADDLE DESIGN FOR DISABLED RIDERS

Many disabled riders who participate in therapeutic riding programs have little strength in their core stabilizing musculature, resulting in poor control of posture. This makes it difficult for them to control their body movements when riding in a conventional saddle. The Independence Saddle is a new concept in saddle design for handicapped riders. It incorporates a back support and fully adjustable arm rests that help to stabilize the rider's position. However, as a result of these additions and modifications, the Independence Saddle is longer and heavier than a conventional saddle.

We evaluated the use of the Independence Saddle from an equine welfare perspective using our electronic pressure mat to measure the amount of force and the pressure distribution on the horse's back. The results indicate that horses carrying this saddle should have a long enough back to accommodate the extra length of the saddle and should be stocky enough to carry the extra weight. As with any saddle, care should be taken that the tree size is appropriate and the general principles of good saddle fitting are applied.

This was a collaborative study between researchers in the McPhail Center, Dr. Lana Kaiser (College of Human Medicine), Dr. Camie Heleski (College of Agriculture and Natural Resources), and Bonnie De Pue, occupational therapist from the C.H.U.M. Therapeutic Riding Center.

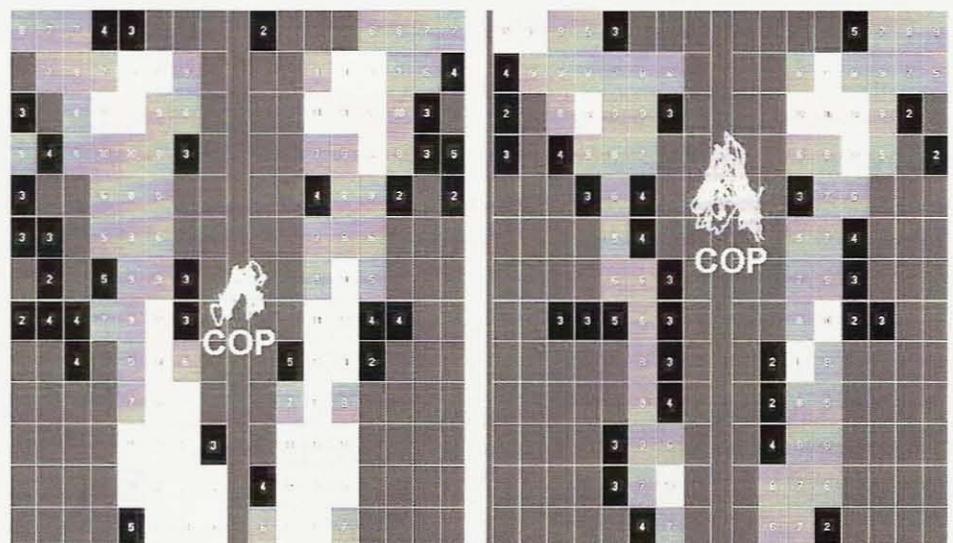
After completion of data collections, Dr. Clayton took a ride on the Independence Saddle. Her observations are that it not only gives the rider more support but the back rest also amplifies the forces transmitted to the rider from the oscillations of the horse's back. This might be beneficial in providing an enhanced stimulus to development of core stability.



The Independence Saddle showing back support.

TRACKING THE RIDER'S CENTER OF PRESSURE BENEATH THE SADDLE

Another study used the electronic pressure mat to track movements of the rider's center of pressure underneath the saddle when the horse was moving at a walk. Comparisons between able-bodied riders and riders with cerebral palsy, with riders in the two groups having had similar amounts of riding experience, showed a considerably larger range of motion of the center of pressure in the disabled riders. We are now investigating whether range of motion of the center of pressure is a useful measurement for monitoring improvements in trunk control in response to a therapeutic riding program.



Saddle pressure profiles for an able-bodied rider (left) and rider with cerebral palsy (right). The path of the center of pressure, shown just above the letters COP, is smaller in the able-bodied rider indicating better control of trunk stability.