



Stay strong

Research shows strengthening equine core helps back problems

Imagine a 200-pound man, twisting about on the back of a galloping pony, and swinging a mallet at a polo ball. His strike is solid and the ball soars downfield. He kicks his horse up a gear to keep a claim on it, an impulse bested by the pony who has already hit high drive. The movement may be repeated hundreds of times over a season. It's a thrill to watch such an athletic partnership, but sometimes the thrill is followed by an urge to call a physical therapist for both horse and rider.

by Tania Evans

It is no secret that warming up some polo ponies at the beginning of a chukker is an exercise in creating symmetry out of stiffness. It takes a few gallops on the field and a few circles in each direction before the horse moves smoothly on both sides of a swing. Sometimes the asymmetry doesn't go away, and is incorporated into the business

of riding. One horse might hate the near-side shot, another may avoid the right lead until well into the chukker, while yet another might resist the bridle because her pelvis locks up when she has to round up.

There is no doubt that equine sports like polo can put a strain on the horse's 56 vertebrae. However, the source might not

A horse's back muscles must be strong to deal with a rider's shift in weight.

start with polo. A lot of Thoroughbred polo ponies come off the racetracks bringing with them a multitude of spinal injuries.

Dr. Hilary Clayton is a specialist in the biomechanics of equine movement, with the McPhail Dressage Chair at the College of Veterinary Medicine at Michigan State University. There she directs a number of research studies in equine movement with topics ranging from analysis of pressure points due to rider weight or poor saddle fit to footfall patterns and lameness. The study of spinal injuries is built primarily on the backs of racehorses, because racing has a consistent level of injury and of terminal injuries. Therefore, these cadavers are more often available for research purposes to investigate back pathology via dissection.

Racehorses scheduled for euthanasia from age, injury, colic or diseases are a good database for a scientific study. There are many controlled variables in racing such as

flat ground, similar footing, and one speed of work in the same direction. Further, racehorses are generally started as yearlings or 2-year-olds; jockeys are of one size and use the same riding style; stabling and handling are similar most everywhere; many racehorses share bloodlines; and training regimens are commonly short and pointed.

I spoke with veterinarian N. Chris

regimen for most young Thoroughbreds getting ready to race. “Generally, a trainer takes about seven days with a yearling to break it in. Then, the horses are put away and started up again as 2-year-olds, and that’s when they go to the track. At the track they get a couple of weeks walking around under saddle and then they go into gallop training. That’s all the training they get.”

Dr. Narelle Stubbs, who has been studying racehorse cadavers for years says racehorse spinal issues can help us understand polo pony backs partly because a lot of polo ponies still come off the race tracks. Also, the sports share many movements such as quick speed and torsion at the pelvis. Stubbs worked for many years in England and Australia as a clinician in various equestrian disciplines including polo. Since 1998, she has been the team physical therapist for the Australian eventing, show jumping and dressage teams at the Olympics and for all disciplines at the World Equestrian Games.

Stubbs attributes some of the racehorse problems to speed. “At the sports we’ve looked at, racing has the highest number of back injuries. ... Speed is one of the primary factors of injury as is the repeated cyclical loading at end-of-joint ranges.”

Though some may think horses are made for speed, Stubbs explains they aren’t built for speed over long distances.

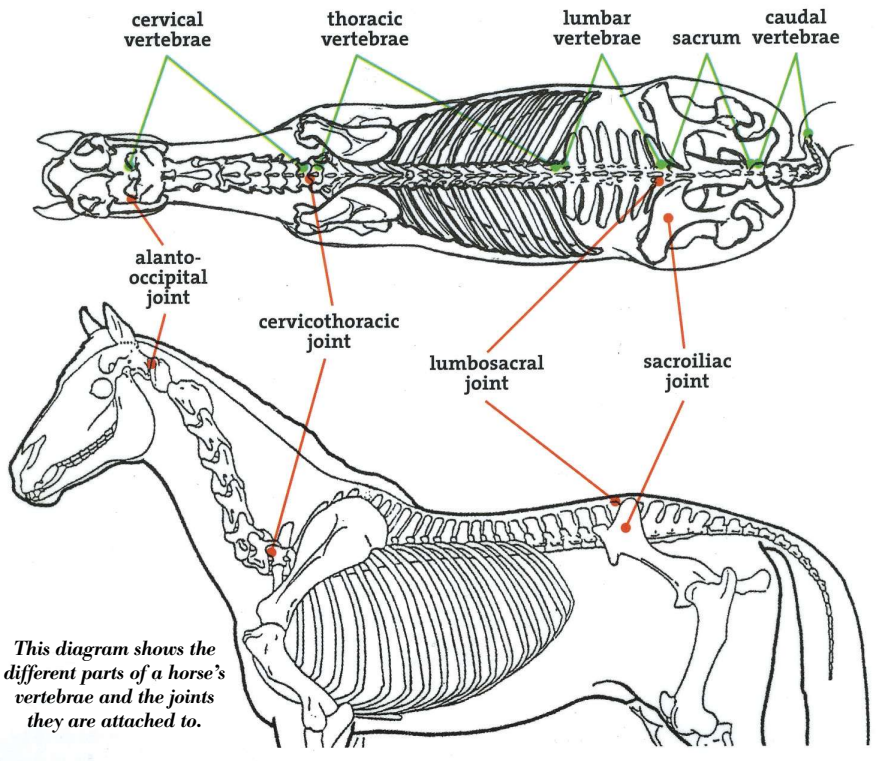
“Horses in the wild don’t gallop for a mile or more. They do little, short sprints. I have dissected horses in the USA, Hong Kong, and Australia from both the elite and low-level tracks. It didn’t matter where they were from, the breeding, the ground, the age, nothing mattered. It is rare to find a racehorse off the track that does not have a problem in the vertebrae, whether it is 2 years old, 5, or a retired 15-year-old.

“You do most damage at extended gaits,” she says, “and especially when you flex or twist the spine at the end of each movement. That and speed are the two culprits.” This type of movement can be seen in other equine athletes like eventing when a jumper twists behind making sure he clears a big jump, or when a polo pony is asked to make a quick change in direction.

“A racehorse can fracture its pelvis just coming out of the starting gate because it might be pushing harder with one leg and experience torsion of the pelvis,” says Clayton, a Grand Prix dressage rider who has dabbled in polo. This movement is similar to the quick starts that a polo pony must make, but more often carrying a 200-pound man.

“In polo, acceleration and deceleration are both potentially damaging to the spine, along with superimposed twisting that comes from the turning and leaning of the rider. Another major cause of problems is

COURTESY OF NARELLE STUBBS & HILLARY CLAYTON



ALEX PACHECO



Newton of Rood and Riddle Equine Hospital in Lexington, Kentucky who practices often at the Derby or Olympic level. He explained the typical training

So, for conducting scientific studies, Thoroughbred racehorses offer clean parameters. However, other breeds and disciplines experience similar injuries.

changes of direction and fast stops, similar to departures from the gate, going from standstill to gallop.” She adds, “The forces of deceleration on injury are as important as acceleration when your joints experience high-force impact. The extreme is like whiplash in a person in a car accident, you accelerate and then suddenly ... stop.”

Saddles can also injure the back. Stubbs says, “... There could be pressure damage due to the size of the rider and relative rigidity of the saddle. Such an injury could be caused by the stirrup bar, for example, or saddle shape applying pressure at the withers.”

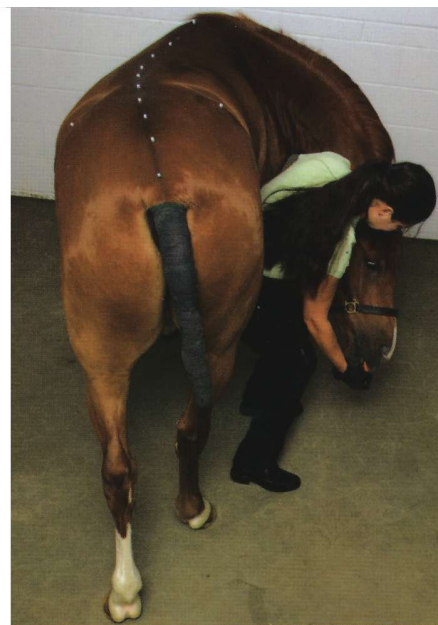
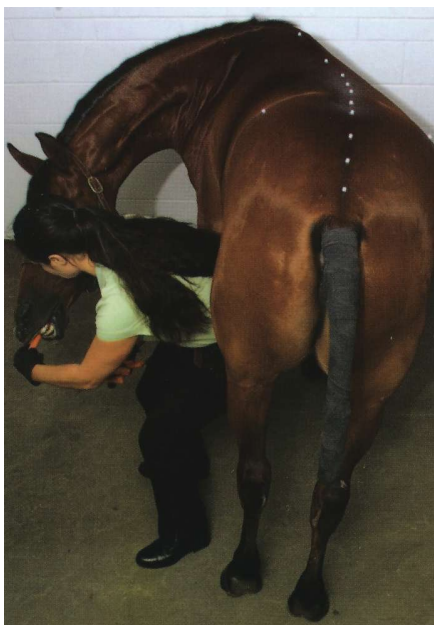
The McPhail Center’s work on back injury analysis and exercises to improve or ameliorate a condition can help polo ponies by extending their working life. Clayton explains, “We look at the common injuries then work on developing specific physical therapy and rehabilitation exercises to both strengthen the back after injury and prevent re-injury. In an ideal world our exercises would be used in a preventative manner to keep our equine athletes sound. ...

“Stability is equally or more important than mobility,” says Clayton, “and the exercises we recommend are designed to strengthen the muscles around the spine and create a balance of stability and mobility. The goal of training is to train the muscles to help the ligaments support the back against other forces, such as ... the weight of the rider ... Our exercises train and strengthen these muscles so they can stabilize the horse’s back and protect it from over-loading.

“The faster the horse goes, the more important it is for the back to be stabilized. We want him to learn to hold and stabilize his back in a more rounded position. In the horse, spinal stability is crucial to prevent and to treat back problems. Both horses and riders need core strength.”

Stubbs adds, “To prevent more injury it’s a good idea to cross train horses to develop dynamic strength. For example, dynamic strength is what allows a gymnast to balance on the rings and lift [her] legs. The gymnast is actually stable, but the movement requires great core strength and stability. That’s what we aim at in the exercises we’ve developed.”

Once you start examining how the various muscle groups work, you can apply your new knowledge to purchase a horse. For example, look for a horse that turns using it’s



COURTESY OF NARELLE STUBBS & HILLARY CLAYTON

Drs. Stubbs and Clayton use stretching exercises to help strengthen neck, back, abdomen and pelvis muscles that control posture and balance.

abdominal muscles. Like people, some horses naturally use their abdominal muscles and will have therefore inherent spinal protection. Others don’t for a multitude of reasons, such as a past episode of back pain or poor conformation.

Horses with back problems are likely not going to play as well as they normally do. Clayton explains, “The thing which all the horses with spinal problems have in common is a lack of performance. This manifests as reduced performance, sometimes behavioral changes, bad attitudes, cringing, or tension in the limbs or back to protect a problem. But the main problem is figuring out where it starts, in a limb injury or in a back injury. If it’s a back injury, our exercises may help.”

The team’s simple core strengthening exercises mobilize the intervertebral joints and strengthen the muscles of the neck, back, abdomen and pelvis that control the horse’s posture and balance. These exercises have been tested for success in several breeds and disciplines including Quarter Horses, warmbloods, Arabians and crosses.

The efficacy of the exercises was proved with a group of eight horses with back problems that were on the equine equivalent of bed rest for three months.

Clayton says, “They were treated solely with exercises. The only exercise they did were dynamic mobilization exercises, which is the fancy name for carrot stretches. We used ultrasound scans to measure the size of the muscles at six spinal levels on both the

left and right sides, and our exercises produced significant increases in the back muscle size at every level on both the left and right sides. Because this back muscle can stabilize the vertebrae it has a protective effect against the development of arthritis. These findings suggest that by using the exercises regularly we can reduce the risk of a horse developing arthritis in its back.”

In addition to exercises, there are simple actions taken by a rider that can help like mounting from both sides; using a mounting block or getting a leg up; making sure the saddle has a gullet that clears the horse’s spine under the rider’s weight; and making sure the edges of the panels don’t dig into the shoulder blades, shortening the horse’s stride. Don’t over tighten the girth, which damages the ligaments underneath the girth and may even cause arthritis at the sternum.

These exercises are clearly defined in words and pictures in *Activate Your Horse’s Core*, a book and DVD created by the research team. It takes about five minutes a day to do a series of these exercises. Many of the exercises can be applied before work even on a cold-muscled horse, others are used as part of a warm up, and others in a cool down. The McPhail team continually adds to its exercises and is now testing the use of a piece of tack that stimulates contraction of the horse’s core muscles during exercise. They hope to have it on the market this year. ♦