

Activating your Horse's Core: Exercises for Mobility, Strength, and Balance

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In both people and horses, the core is important for providing stability during locomotion. The horse's core consists of the bones and muscles of the neck and back plus the muscles that attach the limbs and transmit propulsive forces generated by the limbs to the body. Core training exercises activate and strengthen these muscles which is beneficial both for improving the horse's athletic performance and for reducing the risk of back injury.

Structure and Function of the Horse's Back

The main muscle groups that are targeted by core training are the back muscles, the abdominal muscles, the sublumbar muscles and the muscles in the upper part of the limbs. The abdominal muscles help to round and bend the back and are also involved in yielding through the ribcage. The sublumbar muscles, which are inside the horse's abdomen, round the lumbar region and especially the lumbosacral joint. The back muscles, which move and stabilize the joints between the vertebrae, are divided into two subgroups that have different functions: the long back muscles and the short back muscles. The long back muscles run on either side of the spines of the vertebrae. Their functions include extending (hollowing) and bending the horse's back. Underneath the long back muscles are a large number of short back muscles that play an important role in stabilizing the intervertebral joints and protecting them from injury during locomotion. The muscles that unite the horse's limbs to the trunk are responsible for transmitting propulsive forces from the limbs to the trunk during locomotion.

Back pain is a common problem in equine athletes and most often manifests as poor performance rather than overt lameness. As in people, horses with back pain show dysfunction of the short back muscles that stabilize the spine and the resulting spinal instability predisposes to the development of arthritic changes (facet arthritis). Regular performance of core training exercises is useful for prevention and treatment of back pain as well as for improving athletic performance.

Core Training for Horses

Baited stretches, which are also known as dynamic mobilization exercises, require the horse to follow the movement of a bait, such as a piece of carrot, or to track a target through a specific range of motion in which the horse's neck and back are either rounded or bent to the side. Although these exercises have some value for improving flexibility, their main benefit is to stimulate activity in the core muscles that are used to flex, bend and stabilize the spine.

The horse is taught to follow a bait or target with his muzzle without moving his feet. The movement patterns involve rounding (flexing) or bending the neck and back. Rounding exercises move the chin down and then backwards toward the chest, between the knees or between the fetlocks. Bending exercises take the chin sideways and backwards to the level of the shoulder, the flank or the hock. In order to reach and maintain these positions, the horse must move his neck while stabilizing his back and limbs to keep his balance. A large number of muscles are recruited to stabilize the horse including abdominal, back, gluteal, hamstring and chest muscles. If baited stretches are performed regularly several days per week, these muscles will be strengthened within only a few weeks. The ideal time to perform baited stretches is immediately before working the horse so that the muscles are activated in preparation for work.

One of the beneficial effects of baited stretches is that they activate and strengthen the short stabilizing muscles of the back. Three research studies conducted in different countries and in different types of horses have all shown significant increases in size of the short stabilizing muscles after performing baited stretches for as little as 6 weeks.

Core strengthening exercises are a progression from the baited stretches. In these exercises, manual pressure applied to a specific area of the horse's body stimulates contraction of the core muscles. For example, upward pressure on the horse's sternum stimulates rounding through the base of the neck, the withers and the saddle region. Stroking downward along the intermuscular groove in the hindquarters results in rounding of the lumbar and lumbosacral joints in the area behind the saddle. This effect can be achieved by unilateral or bilateral

pressure. For maximum benefit, lifting through the withers can be combined with lumbar lifting.

Baited stretches and core training exercises should be used in young horses to activate and strengthen the core musculature in preparation for accepting the weight of the rider. The use of these exercises should be continued throughout the horse's career to improve performance, especially in highly collected work and jumping. If the horse must be rested due to illness or injury, these exercises can usually be continued so that core strength is maintained. It is also recommended that core training exercises be integrated into the rehabilitation program following colic surgery.

The third type of core training is balancing exercises which involve moving the horse's center of gravity; the horse activates his core muscles to resist the movement and/or to restore his normal posture and balance when the pressure is released. Balancing exercises recruit the muscles that attach the limbs to the trunk, including the thoracic sling muscles, the gluteal muscles and the hamstrings. The first balancing exercise involves applying pressure to the sternum in the middle of the horse's chest and gently pushing backwards. The horse will rock back very slightly onto the haunches using the thoracic sling muscles to control the backward motion. The rocked-back position should be held for 5-10 seconds before releasing the pressure. A progression of this technique is to rock the horse back with a forelimb or hind limb raised. Another balancing exercise involves gently pulling the tail to one side to rock the haunches from side to side. This activates the biceps femoris muscle which is very important for pelvic stability. This muscle will be seen contracting and relaxing in the area around the stifle as the horse sways toward and away from you.

Baited stretches, core strengthening and balancing exercises should be performed at least 3 days per week and preferably more often to improve your horse's core strength. Ideally, these exercises should be performed immediately before exercise so the muscles are pre-activated in preparation for the work that follows.