

DRESSAGE TODAY

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EXTRA

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FROM THE DRESSAGE TODAY ARCHIVES

Modifying Muscle Patterns to **Build** A Better **Athlete**

Understand why and how you should activate a greater range of muscles in your horse's body.

By Jec A. Ballou

The best way to modify a horse's postural habits is to focus on activating a wide range of muscles.

The goal of changing a horse's postural habits to help him move better often derails in the first few minutes of a ride. Why? In the horse's body, different muscles serve different purposes, and often dressage riders fail to activate the right muscles. Furthermore, activating the wrong muscles can cause other problems, like stiffness or limited flexion of joints, which are also counterproductive to the goals of dressage. During training sessions, many riders activate the horse's "gymnastic" muscles—or large, exterior muscles that are suited for locomotion. These muscles are responsible for making sure that the

horse covers ground to move from one place to another, but they are not effective at communicating with the nervous system to establish new muscle patterns, or muscle memory. Overdeveloping a horse's gymnastic strength can quickly result in stiffness and when it does, it alters a horse's reflex system and inhibits joint flexion. As an example, a horse can have very strong back muscles but be highly compromised in how well he can move. According to veterinarian Dr. Gerd Heuschmann, tension arising from a hyper-toned back actually slows down a horse's hind legs and creates a habit of bracing through his body rather than improving agility and balance. Likewise,

gluteal muscles, when strengthened disproportionately to their neighboring smaller muscles, can restrict the hind legs from swinging freely. Many of today's riders have misinterpreted the concept of strength, according to Heuschmann. They spend too much time trying to drill the big, flashy gaits they think they need for dressage. This repetition produces rigidity and asymmetry.

"You have to make your horse an athlete. A locomotional horse gets dull," he said, referring to horses who have been trained with an emphasis on strengthening their topline and hindquarters or to have big gaits every day while their finely controlled muscle groups or their



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Jim Masterson

Exercise 1, described on page 5, targets tension in the vertebrae of the poll, atlas and neck.



Jim Masterson

Exercise 2 targets tension in the entire spine, from the sacrum to the poll.

postural muscles, such as the multifidi group alongside the vertebrae or the pelvic stabilizers have been neglected.

When riders need to change muscle patterns, or muscle memory, they should focus on stimulating the smaller muscles deep in the horse's body, close to his spine and around his joints, often called the intrinsic muscles. In addition to supporting the locomotion muscles, they are highly supplied with nerves and neural pathways. Think of them as storing the language for your horse's movement. By activating these muscles ahead of and in complement to the larger muscles, engaging new pathways are established and/or existing ones become refined.

Heuschmann said for most riders this can be achieved through riding at slower speeds, referencing the slow warm-up jog advocated by Alois Podhajsky of the Spanish Riding School. Sometimes called the "pony trot," this slow gait resembles a casual Western jog and allows the horse to move around easily, flexing his joints and swinging through his spine, before more impulsion is added. Podhajsky also noted one of the most beneficial rehab protocols used by the cavalry. It involved riding horses on a long rein up and down hills in the forest until the horse's neck dropped and relaxed,

allowing the nervous system to change. Sometimes this required months, but until then things could not change.

"Any horse who is tense in the poll or back is losing his natural rhythm," said Heuschmann. As tension releases from the large back muscles that are blocking good movement, the smaller back muscles become activated.

According to Sarah le Jeune, DVM, at the Equine Integrative Sports Medicine Center at U.C. Davis, in general, it is easier to train the locomotive muscles and harder to train the postural muscles, which require targeted exercises. However, this aspect of training requires further research, le Jeune acknowledged, since much of our current physical-therapy data applied to horses is transferred from human fitness studies but is not always accurate for a quadruped stance.

"What we know is that pain inhibits normal muscular activation and can actually lead to inactivation of normal muscular pathways," said le Jeune. Pain can result from actual injury, excess tension or from imbalanced muscular development. The most effective daily strategy for changing horses' muscle patterns seems to be to first relieve some of this pain or stiffness through physical techniques like trigger points, mov-

ing joints and dynamic stretches, then perform corrective calisthenics and then proceed to a regular riding workout.

Commit to using two or three of the exercises below for the first 10 minutes of your warm-up phase each day before you begin your regular ride. Try this for six weeks and notice any changes. By communicating directly with the pathways that store patterns, you should see substantial progress. Experiment with different exercises, as some will produce more dramatic results for your horse than others. Find the ones that yield measurable changes.

Exercises 1 and 2: Release Tension to Improve Range of Motion

For Jim Masterson, whose Masterson Method bodywork has been used for the United States Equestrian Team, taking a horse's joints and limbs through full range of motion without resistance or tension is paramount to improving athleticism. This is best accomplished each day, he believes, when the locomotion muscles are not yet engaged. Three things happen with movement in a fully relaxed state, according to Masterson. First, the horse feels specifically where the tension is. Next, he releases the tension. Last, the horse's nervous system is reprogrammed. "The key isn't in the amount of movement, but in the amount of relaxation in the movement. Asking for even a tiny range of motion in a relaxed state is 10 times more effective than asking for a large movement in a nonrelaxed state," Masterson explained. He recommends two simple exercises to apply this principle of releasing tension to the postural muscles of the horse's spine:

1. The first exercise targets the vertebrae of the poll, atlas and neck. Stand at your horse's head on the near side with the fingers of your left hand resting softly on his nose. Place two fingertips of your other hand gently on his neck about a hand's width behind and below

his ear. Soften both arms and hands so that you are barely touching the hair. With the left hand, gently wiggle the nose about half an inch from side to side. Do four wiggles and stop. This is to check that the movement is still relaxed. Wiggle again and then stop. Repeat this a few times. If the horse finds this uncomfortable, then he is feeling tension in the postural muscles of the spine in this area. Don't try to stop him from fussing or tossing his head. Instead, soften your hands even more and wiggle with even tinier movements. This will give him the opportunity to release the tension more comfortably. Do both sides in small increments, a little every day. "The reason a wiggle works is that it's a tiny movement in a relaxed state that the horse cannot brace against," said Masterson.

2. The second exercise targets the entire spine, from the sacrum to the poll. Stand at your horse's hind end, alongside

his hip, with your left hand resting softly on the sacrum above the base of his tail. Relax both arms and hands. Using the heel of your left hand, gently wiggle the hind end about an inch from side to side, looking for a tiny wave or rhythm through to the nose. Your horse's head should swing from side to side. Continue for at least two minutes.

Exercise 3: Utilize Sensory Re-education Paths

After releasing tension from restrictive areas of the horse's body, you can then introduce new muscular patterns with the following corrective exercises during the slower portion of your warm-up. The use of sensory re-education paths has become popular at rehabilitation facilities because they enhance a horse's proprioception (his awareness of his own body position), which, in turn, creates a horse who can move with fluidity and knows well where his feet are.

These paths use 3-meter segments of alternating surfaces that a horse walks on or through for a total of 30 or more meters. Pebbles, firm ground, water, sand and grass make up each segment. Therapists use these paths to wake up a horse's neuroreceptors, which deliver mobility to areas of the neuromuscular system that are not being accessed. Especially for horses who train predominantly on manicured arena surfaces, these paths have proven successful in tuning up a horse's limb reaction time, joint flexion and recruitment of postural muscles.

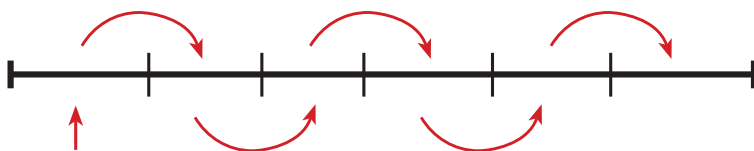
In the absence of a formal sensory re-education path, you can create a similar experience by treading across the surfaces available immediately near your barn: gravel, wood chips, pavement and grass. Aim to walk or jog slowly across these changing surfaces three times per week for five to 10 minutes. Try not to micromanage your horse; allow him to find his footing even if he trips.

Ditches and steep banks require coordination between the front and hind end plus quick adjustments of balance. Absent a ditch, you can improvise by riding up and down a short, steep bank or down into a creek and out the other side.

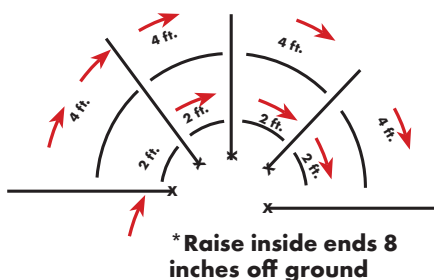


Amy K. Dragoo

Exercise 6A: Snake Over Poles



Exercise 6B: Raised Fan



Exercise 4: Add a Ditch or a Drop

Commonly ridden by three-day eventers, a ditch, where the horse negotiates a steep downhill drop for three to four steps and then immediately climbs back up the other side, requires coordination between the front and hind end plus quick adjustments of balance. These adjustments help the horse lift the base of his neck and calibrate his pelvic stability. They also help fix one-sidedness since the horse has to flex and push off both hind legs equally. When a horse has become clever at traveling in a slightly crooked posture in the arena, riding a ditch will magnify that misalignment and allow riders to correct it in a slow, finely controlled manner.

If you have access to a ditch, ride across it in a controlled walk with the horse's body absolutely straight, no hindquarters swinging sideways, five to eight times daily.

Absent a ditch, you can improvise by riding up and down a short steep bank or down into a creek and out the other side. Another option is to build a raised pedestal or platform that the horse steps up onto and then steps off of.

Exercise 5: Step Sideways

Sideways movements promote mobility of intervertebral and hip joints while recruiting the small muscles that stabilize them because they require rearrangement of neuromuscular coordination. The simple exercise of turn on the forehand, for example, when executed correctly, mobilizes the rib cage and frees up restriction in a horse's ventral muscle chain, which connects

his pubic bone and abdomen to his jaw and tongue. Movement therapists sometimes refer to this as a Pilates maneuver for horses. Either mounted or from the ground, perform three full turns on the forehand in both directions every day, making a 360-degree rotation each turn. The horse's hind legs must cross to form the letter X with each stride. Check to ensure an evenness of crossing over in both directions.

Exercise 6: Poles with Purpose

Ground-pole routines appear frequently in rehab programs or to correct neurological misfirings because they play a role in altering a horse's patterned movements and in recruiting stabilizing muscles. As a horse takes measured strides with distances and heights set by poles, he corrects gait irregularities and poor rhythm. These gait abnormalities can include uneven use of the hind legs, persistent crookedness and habits of bracing his neck. Depending on which condition needs to be corrected, a variety of pole routines can be used. The following patterns target hip stabilizers, improve joint flexion and resolve muscular bracing.

A. Snake Over Poles. Place six to

eight poles, touching end to end, in a long, straight line either directly on the ground or raised to a height of 8 inches. In a slow walk with light rein contact, ride a tight serpentine that crosses back and forth across the line of poles. Your loops should be very small so that you remain close to the pole rather than drift out, away from it. Repeat several times.

B. Raised Fan. Use five poles to create a fan shape with the inside ends of the poles raised 8 inches off the ground. Place the raised ends of the poles so they are 2 feet apart from each other. Measure the center of each pole 4 feet apart from each other. Begin by riding around the inside edge of the fan on a tiny, slow-motion circle. Be sure your horse takes only a single step between each pole. Now, enlarge your circle to cross over the outer edge of all five poles. Try to get three steps between each pole. Continue repeating this sequence.

C. Pick-Up Sticks. Using as many poles as you have access to, scatter them around the arena in a random fashion. Place some close to one another, others far apart and at all kinds of angles. Now ride around the arena in a walk/jog, crossing over the poles with loops, curves and zigzags. Cross the poles using numerous approaches—straight across, obliquely. Ride for three-minute circuits like this, constantly changing your order of riding over the poles. After each circuit, rest briefly and then repeat.

Especially when training programs are proceeding smoothly, it can be tempting to overlook the importance of routines like the ones above. But remember: Every athlete needs to constantly keep his muscles and movement patterns balanced and tension-free. Only through consistent recruitment of the nervous system without involvement of the gymnastic system can we do this. By paying attention to these small details we often produce enormous results. 🐾

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Tips from Trainers Who Teach

ACTIVATE YOUR HORSE'S MOTOR

By João Miguel Varela Torrão with Annie Morris

Many instructors mention the need for “activity” in the horse’s hind end. What does that mean? How does one achieve it? I will explain what correct activity is and how the rider can use her aids to activate her horse’s motor.

Activity and Balance

Demanding activity is one way for an instructor to guide a rider toward finding correct impulsion. Think of the horse’s hind legs as the motor. The motor naturally pushes the horse forward in motion. When you add activity to the hind legs with your leg aids, you increase the RPMs (revolutions per minute) of the motor. At the same time, you must give the horse a waiting aid with the rein. You will feel an increase in the power but not the speed. The tempo should stay the same or become slightly quicker, the rhythm of the gait should stay pure and the ground cover and miles per hour should not increase.

Impulsion is part of a correctly balanced horse and is one of the most important qualities I help riders focus on finding in dressage. If the horse is in the right balance for a certain level, every exercise and movement at that level should be easy. Activity behind is necessary to achieve longitudinal balance because the horse needs an increased amount of push, reach and engagement of the hind legs to keep them underneath himself. When the horse’s hind legs are energetic and in the right

place to carry his weight, his back can be relaxed and the energy can move through his body over the topline to the bit. If the horse lacks activity and his hind legs stay out behind him, he cannot carry his weight on the hind end and his energy will not make it to the bit.

Before you can ask for activity, make sure you have the following:

- You can ride in a regular rhythm and correct tempo at each gait.
- The horse is supple and you have control of his lateral balance.

If you try to add activity to a misaligned horse, the energy you create in the hind legs disappears out the crooked body part.

If you try to add activity to a misaligned horse, the energy you create in the hind legs disappears out the crooked body part instead of passing through the back and connecting to the bit.

CORRECT ALIGNMENT ON A CIRCLE



SHOULDER FALLING LEFT



- You feel an even connection in both reins.

If you try to add activity to a misaligned horse, the energy you create in the hind legs disappears out the crooked body part instead of passing through the back and connecting to the bit. Use the contact you feel in the reins to monitor the lateral balance because the weight in the reins reflects the weight on the shoulders. In other words, if you feel the horse stronger on one rein, it is almost always because he is leaning on one shoulder; he is unlikely to be stiff only in the jaw or neck. If the horse is even in the contact, it means his shoulders are in the right place and carrying even weight from left to right. To help the leaning horse

become more even in the contact, use the leg on the heavy side to move that shoulder underneath him so the shoulders are even. The rider's leg can also align one or both hind legs to give the horse better ability to carry the weight behind and therefore lighten the shoulders.

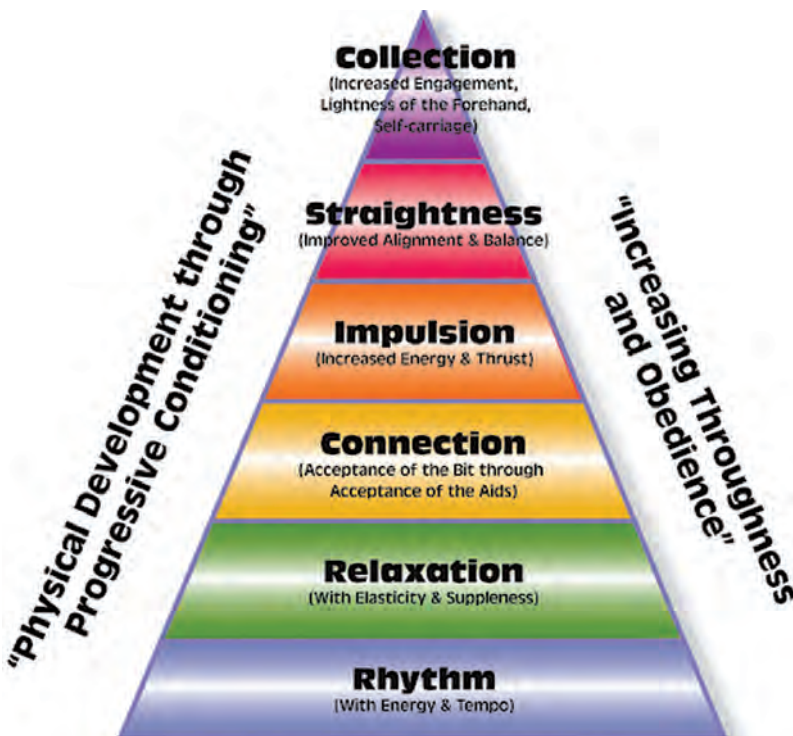
"Tak Tak"

When I teach a rider to add impulsion to the horse's motor, I say, "Tak tak!" to correspond with the correct leg aid to activate the horse. The idea of "tak tak" helps the rider find the right energy in her own legs. The aid is not a kick, but is

You must incorporate a waiting rein aid as you use the activating leg aid to make sure the horse does not speed up.

a quick tapping with the ankle, heel or spur. The rest of the leg is relaxed, allowing the horse's energy to move through the horse under the seat and leg. Because every horse and rider are different, you may need to experiment. Some horses respond better to a whisper of movement, some need to feel the boot leather and some do better with a tickle of the whip at the same time. The timing and energy of the activating aid is more important than its strength. Sometimes riders use their legs like glue, which causes the horse to slow and become dull to the legs. The rider should use the "tak tak" leg aid to teach the horse to activate in response to a lighter leg aid. Then the rider can do less with the aids and the horse offers more.

The Training Pyramid



Being mindful of qualities in the Training Scale is important when activating a horse's hind end.

You must incorporate a waiting rein aid as you use the activating leg aid to make sure the horse does not speed up. Speed causes the horse to push the hind legs out behind him and compromises the longitudinal balance. Use a quick aid—one stride or less—when you close the hands on the reins without coming backward with the arms to ask the horse to wait. Immediately afterward, you release and allow your horse to go on his own. Repeat the waiting rein aid

as needed as you activate your horse's hind end.

When done correctly, activating the horse's motor gives you the power you need to improve his longitudinal balance and therefore achieve collection. Riders of all levels can think of the activity behind, whether they add enough for First Level or for Grand Prix. The rider who masters activity behind learns to channel the horse's energy and creates power in the work. 🏇

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