



Back to the Basics
TO BRING THE HEAD DOWN,
YOU MUST FIRST LIFT THE BACK

THE BIOMECHANICS OF
BALANCED
RIDING

STORY AND PHOTOS BY
STACEY KOLLMAN

“You have to get the head down to get the back up.” Riders and trainers have repeated variations of this statement for decades, right? No wonder a common misconception of riders seems to be that holding a horse’s head and neck down and sending him forward creates self-carriage, that blend of balance, lightness and impulsion that feels effortless. | Exactly the opposite is true. To lift the horse’s center of gravity and start the weight rocking back onto the hindquarters, the horse’s neck does have to move down and, more importantly, reach forward. This “telescoping” motion puts traction on connective tissue linking the neck to the withers. For the traction to work, though, requires elasticity in the long muscles of the back. We’ll show you a simple way to lift your horse’s back, lower the head and neck and “wake up” his abdominals.

Muscles are made elastic and strengthened by alternating between contracting them actively and then stretching them passively by contracting the opposing muscles. Bending and flexing exercises do just that by creating a sort of conversation between muscle groups. One set of muscles gets the signal to contract to flex or extend certain joints while the opposite set of muscles has to stop contracting at just the right moment.

The long back muscles, the paired *Longissimus dorsi*, connect the body back to front from the sacrum to the neck, with attachments to the main weight-bearing structures and the rib cage. Their job is to hollow the back. When a horse has a chronically tight back, the longissimus and dorsal back muscles are locked in contraction.

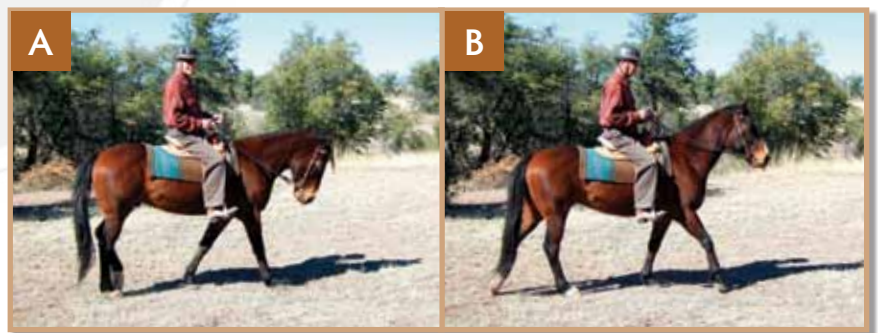
And because the back muscles insist on doing all the work, the opposing muscles whose job is to lift the back—the abdominals—just go to sleep. End of conversation.

Abs: “Thanks for taking over, *longissimus*. Call us if you need us.”

Back: “Yeah, well don’t hold your breath. I’ve got the system on lockdown.”

As we train and condition our horses, we need to ensure the abdominal and back muscles stay on speaking terms. When you focus on head and neck position, you only succeed in interfering with this process and hindering the mechanism of self-carriage.

Efficient—and coincidentally beautiful—movement happens when opposing muscle groups each do their jobs in the right order at the necessary time in a



(A) When this rider pulls his horse’s nose in and head down—closing the lower loop of the “S” shape that is the neck’s structure—the horse falls onto his forehead even going uphill. He stabs the right foreleg into the ground and leaves the left hind out behind instead of stepping under. Can you see how the impulsion appears stuck behind the saddle? **(B)** Support the head and neck without pulling and the lower “S” loop of the cervical vertebrae flattens, starting to lift the base of the neck. Now the rider can focus on engaging the abdominal muscles to encourage the back to swing and the weight to move back off the forehead. This more connected horse steps under behind and reaches with the shoulder for a more balanced walk. Ideally, the rider will continue to encourage this horse to lift his center of balance so his neck will telescope out more and he’ll be able to step under even more, rocking his weight even more onto his hindquarters.

series. For example, the long muscles of the back must be elastic enough to allow the withers to lift when the neck telescopes out and down because the barrel is lifting and the weight is rocking back and the horse is engaging behind. The abdominals are lifting the back to allow the pelvis to tuck because the long muscles of the back are elastic.

That’s a complex set of interactions—24 muscle pairs act directly on the neck alone. So it’s no surprise that riders interrupt that “conversation” between muscle groups when they focus on the headset instead of the muscles of propulsion.

Teach your horse to lift the base of his neck and his barrel and he will be able to telescope his neck and achieve the most biomechanically efficient head and neck carriage for the activity at hand.

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"I Only Trail Ride My Horse. Why Do I Need Self-Carriage?"

Ensuring your horse is working in self-carriage means you're encouraging him to choose the most energy efficient and least concussive way of going. An added bonus is that this posture also generally provides the most stable and comfortable "platform" for the rider's seat.

EFFICIENCY

Every body has an optimal alignment—literally the way the bones stack—that allows minimum number of muscles to create movement. Use fewer muscles and ensure they're working unimpeded and the body can achieve its greatest range of motion with the

least possible expenditure of energy. Add non-essential muscle contractions and the body will experience decreased range of motion, suffer tightness and stiffness, and exert more effort to achieve the same task.

You can easily feel this in your own body. Start by walking a few strides, stepping heel to toe, breathing deeply, swinging your arms and allowing your spine to undulate while your hips move left-right-left-right. Notice how the movement feels and think about how you might feel after sustaining that walk over time, say while you're walking your dog around your neighborhood.

Next, add some unnecessary muscle con-

"COW" PORTION OF THE EXERCISE



You'll be activating a reflex when you ask the horse to contract his back muscles by pressing down with your fingers, but horses react differently the first time they experience this. If you don't get a response right away, don't give up. The location of the "reflex line" can vary from horse to horse, so experiment with the distance from the spine where you place your hands and the amount of pressure you exert. Be sure you're standing with your weight evenly distributed over both feet and your back soft so you are in balance, not leaning into the horse. Take your time and notice your horse's communication tools, including eyes, ears and feet, and be alert to the possibility of a nip or a kick.



"CAT" PORTION OF THE EXERCISE

traction. Start out walking the way you were before, but after a few strides clench your buttocks, putting a strong contraction in your glutes. Does this change the length of your stride? Do you feel like you're exerting the same amount of effort to cover the same amount of ground? Might you cut short that dog walk if this was the way you had to move?

A horse—or a human—who chooses to move in self-carriage can accomplish more with less energy.

HEALTH

Your horse represents an investment of your money and your time. You've trained him and you've built a working relationship with him. It just makes sense to protect this investment by safeguarding his soundness. With a little attention to the mechanics of his movement, you can better ensure the long-term functioning of his muscles, joints and connective tissue.

A horse whose posture allows him to achieve maximum weight-bearing in motion with the least amount of concussion has a better chance of staying sound. Horses who move with tight backs and inefficient carriage actually pound the ground harder with their forelimbs. This creates the potential for all kinds of common but preventable conditions to develop or worsen—everything from inflammatory conditions like laminitis to arthritic conditions such as ringbone.

Here's an exercise to help you feel the concussion caused when a body is heavy on the forehand instead of moving freely in self-carriage. Start out standing with your weight distributed evenly across the balls of both feet. This is easiest if you align your shoulders over your hips and ensure your knees have the slightest bend; you should feel like you could easily bounce up and down very subtly. This engages the natural shock absorption



Achieving a smooth back lift takes some practice, so don't be surprised if you don't get much response at first. Be happy with a very slight shift upward to start and praise your horse for the effort. If you get impatient and just "goose" your horse, you won't achieve the release and stretch that helps create an elastic back. To improve your outcome, be sure to stand balanced over both feet with your knees slightly bent and lift by pushing up from the ground, not by pulling up with your torso.



system that includes your bones and connective tissues.

Now, engage the muscles of self-carriage: Send your belly button toward your spine gently to put a little tone in your abdominal muscles and let the base of your spine, your sacrum, drop toward the floor and draw forward just a tiny bit. (If you had a tail, you'd be tucking it just slightly between your legs.) Go for a little walk like this, being sure to breathe deeply and allow your arms and hips to swing.

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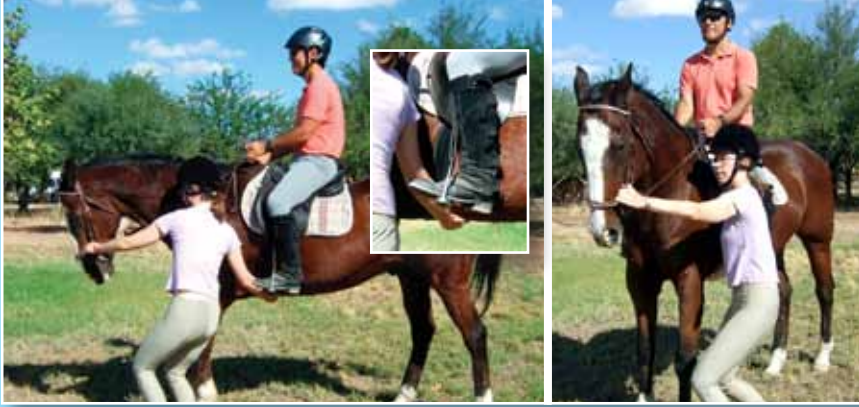
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MOUNTED BACK LIFTS

SIDE VIEW: The horse has lifted the base of his neck and his withers and engaged his abdominals (see the shadow line reaching forward from the flank area). Though this rocked some weight off his forehead, he took a step back with his left hind instead of fully loading his hindquarter. Notice that the handler needs to step back a half step and re-align her body for optimum balance before the next lift. **FRONT VIEW:** The handler's balance is important in creating a good back lift in the horse. She should be aligned shoulder over hips over feet. By bending her knees in this posture, she is lifting from her legs—essentially pushing into the horse's midline—instead of trying to pull up with her back and shoulders. That helps both handler and horse create a sustained lift so the rider can take time to feel and adjust, opening his hips and allowing his legs to drape softly. **DETAIL:** The assistant exerts upward pressure just behind the girth, in the depression on the midline at the base of the sternum bone. Sometimes a little fingernail pressure is useful, or a vigorous motion as if scratching an itch. For safety, be aware that most horses can easily kick at a fly, or an annoying human trying to induce a "sit-up," and reach that very spot with a hind hoof.

Notice whether your steps feel light or heavy and, if you're on dirt, gravel or a hard surface, note how your steps sound.

Think about how you'd feel if you walked this way for an hour.

Keep walking while you change your posture, letting go of the tone in your abdominals so your belly pushes forward and your shoulders and backside go backward, tightening and hollowing your back. Does your torso remain upright, or does it want to incline forward to help you balance? Are your footsteps light or does it seem as if you're pounding on the ground? How do your steps sound? Do you want to walk for an hour like this, or would the concussion make your joints and muscles sore?

COMFORT

No matter whether you ride out cross country for miles or work diligently in an arena, you want to sit comfortably on your horse at every gait. Most people can achieve a fairly stable seat at the walk and, depending on the horse's movement, at the canter. But what about the trot? Are you one of those people who grits her teeth and endures sitting the trot? Or do you avoid it altogether?

Every sound horse, when he moves biomechanically correctly, can achieve a sitable trot. When his weight-bearing mechanism is functioning properly—namely, he isn't trying to hold up weight by contracting the long back muscles—he provides an elastic "platform" for the rider to sit on. The rider has to "plug in" her seatbones to the horse's back to move with balance and stability and communicate subtle cues about gait, stride and rhythm. The horse has to maintain his part of this partnership by providing a place for the seatbones to connect. If his back hollows, he drops out from under the rider's seat and adversely effects balance and communication. When he lifts his back, he "plugs in" to the rider and both can work in harmony and ease.



Stacey Kollman is the founder of Desert Horse Equestrian Services near Tucson, Arizona, where she coaches horses and their humans to be happier,

more willing and harmonious partners. You can reach Stacey, learn more about her work and philosophy and subscribe to her free newsletter at www.deserthorseinc.com

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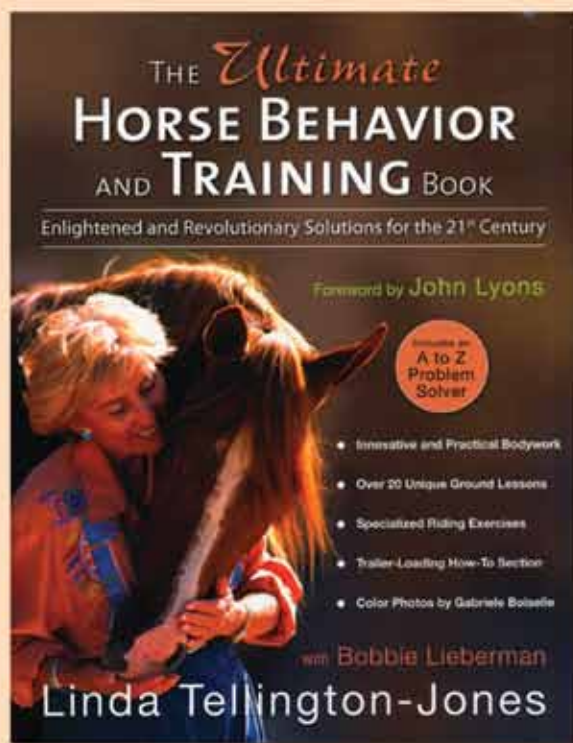
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