

# MODULE 2: Balance Training for Riders

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What is balance, exactly? And, how does balance apply to the rider?

Simply stated, balance is the ability to maintain the body's position over its base of support within stability limits, both statically and dynamically. In more complex terms, "Equilibrioception" is a result of your brain comparing sensory data from your skeleton and muscles with those of your eyes and inner ear in relation to the gravitational pull of the earth. It processes these data faster than you could possibly be aware, and then sends signals to the muscles, tendons and joints in order to adapt to changes in speed, angle, elevation, direction, etc. Since our brain is the processing center for all the information as well as the transmission center, it behooves us to ensure that it is as healthy as possible. It is critical that we keep the communication pathways strong and clear, so that our muscles and joints

don't miss those extremely important signals!

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Balance is at the very foundation of riding. Every book on the subject, admonishment from riding instructors, and principle of riding can be traced back to this single foundational principle – from the correct ear-shoulder-hip-heel body alignment, to the way the rider is supposed to hold her hands, and the way a rider is told to fold over her horse in a jump. And, it is also, in my experience, one of the most misunderstood, and often times, entirely ignored principles in all of riding!

Even more disconcerting to me is that balance is also one of the most ignored physical principles in life. When was the last time you heard of a "balance training" class? There are some fitness programs that incorporate exercises that challenge and improve balance, but for some reason those parts of the programs are most often peripheral to the main "benefits" intended by the programs. And yet, according to the World Health Organization, falls are the second leading cause of deaths by accidental or unintentional injury, worldwide.<sup>1</sup>

Children must learn to balance themselves before they can ever walk, and once they have learned to walk they spend nearly two decades further developing their balance until they have reached physical maturity and their neurologic development slows. In fact, here is a direct clinical correlation between perceptual-motor exercises, such as skipping, and cognitive learning speed. Children who master balance in movement early learn to read much more easily than children who do not.<sup>2</sup> However, over time, with age, injuries and simple lack of use, our balance and neurological facility clearly deteriorate unless we make a concentrated effort to prevent this decline.

Let's examine why balance is so critical for riders. There are many very good reasons that riders often overlook, such as:

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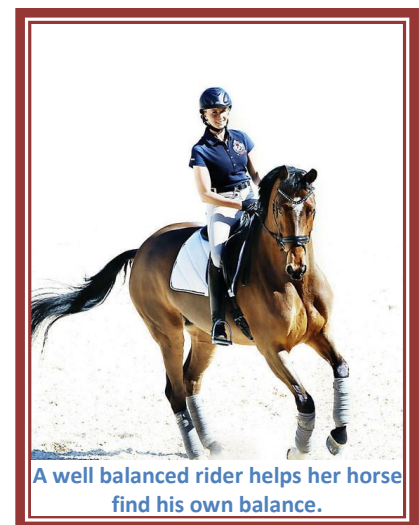
<sup>1</sup> <http://www.who.int/mediacentre/factsheets/fs344/en/>

<sup>2</sup> <http://psycnet.apa.org/psycinfo/1987-20213-001>

## The rider's balance directly affects the horse's balance.

As riders, this is the most relevant reason we need to have excellent balance. Horses, being prey animals, have a very keen instinct to keep themselves in balance. Horses that are out of balance are vulnerable to predators, and therefore tend to feel instinctually become fearful when their rider is out of balance. It is not uncommon to see a horse feel completely secure and confident under a very balanced rider, but get worried, upset, spooky, or even dangerous under a very unbalanced rider. People often assume this is because the former rider is also the more skilled rider, but it has much more to do with the balance than the rider's skill. A completely novice rider who has excellent balance will instill much greater confidence in the horse than a very skilled rider whose balance is inconsistent or incorrect.

To get an indication of just how much your balance influences your horse, try this experiment next time you ride. Walk on a large circle, with loose reins, and without changing anything with your reins, lean to the inside of the circle. Observe your horse's reaction. More than likely, he will start to make a smaller circle. Then, try leaning to the outside of the circle and observe the horse's response. He will likely start to make a larger circle again. The smaller and lighter-built your horse is, the more pronounced this effect will be, but don't be fooled by the big guys. They feel those changes in balance just as much as the smaller horses do. They just have more mass to accommodate changes in balance with, and therefore may have an easier time recovering from your shifts of weight. It's no different for your horse to carry a rider than it is for you to take a child for a "piggy back" ride. If the child is still chances are good that you can carry it without too much effort, but if the child is busy and moving around on your back, you would be hard pressed to sprint 100 meters or jump over obstacles!



Now imagine how much impact these changes of balance will have on your horse's joints and tendons, as he compensates for every small loss of balance for both his own body and yours. Over time, compensation for the rider's lack of balance will result in cumulative stress on the horse's joints, tendons and soft tissue structures. These compensations can result in injury and lameness in the horse, with the actual underlying cause being overlooked entirely. Additionally, compensation for rider imbalance can result in asymmetrical development of the horse's musculature. This brings its own set of complications for the horse as repetitive stress causes over development of some parts of the horse's body, and underdevelopment of others. These horses tend to eventually demonstrate uneven gaits and often un-diagnosable chronic lameness.

This is likely a major reason that traditional and classical texts dealing with the training of young horses insist that young horses should only be ridden by highly educated riders, while inexperienced riders should only be riding trained horses. Not only does a more experienced rider know what to ask the horse for and have a feel for how much to ask without stressing the horse, but the more experienced rider is presumably easier to carry for the young, unbalanced horse, and thus can minimize the stress on the young horse's body as he develops the strength and coordination to carry the rider confidently.

## **Balance is an indicator of brain health.**

Of no less importance from the standpoint of overall health, is the fact that that your brain controls your balance, and if your balance is weak or unstable, it is a clear sign that your brain is not properly communicating with your body. As individuals who spend a great deal of time around large, unpredictable animals capable of injuring us in an instant, having well-developed balance is critical to our physical safety.

How many times have you seen a horse spook and jostle the person leading it, or suddenly bolt on the lunge line and pull away, or trip and accidentally bump into us? If we are not fit and coordinated enough to keep our balance while responding in the moment, we are at a much higher risk of getting into a bad situation with the horse, which could result in serious injury for both horse and ourselves.

However, balance is extremely important for each and every one of us for some even more serious long-term reasons, as well.

## **Lack of balance can ultimately kill you**

According to the CDC, one out of every three adults age 65 or older falls each year. And 1/5<sup>th</sup> of those falls result in serious injuries<sup>3</sup>. As we age, and especially if we have had previous injuries, our balance is compromised more and more each year, unless we actively work to counteract that trend through consistent, vigorous exercise. Balance training is critical for overall quality of life, not just riding!

It is equally important to ensure that our inner ears and eyes are healthy. Congestion from a cold or chronic infection can completely upset our brain's ability to manage our balance appropriately – the brain will process the data, whether it's right or wrong, and will make incorrect adjustments based on the flawed data. For this reason, if you are an individual who often suffers from vertigo when you are sick, it is safest to stay off your horse during those times. Support your immune system by eating a "clean" diet full of fresh vegetables and fruits and lean sources of protein, avoid allergens which can cause inner ear congestion, and stay well hydrated in order to support a healthy equilibrium!

## **Balance training exposes underlying asymmetries in the rider's body**

When one first begins a balance training program, asymmetries in the body become immediately apparent. The first and most obvious of these to appear are inequities in muscle development and joint stability. However, as training progresses, neuromuscular asymmetries will become more evident. This becomes especially obvious when the rider sits on a stability ball. The ball will respond to what their body is doing, regardless of what they think they are doing. For this reason, we include many types of balance challenges into the Ride*fit* program, which we'll discuss in greater detail a little further on.

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<sup>3</sup> <http://www.cdc.gov/homeandrecreationalafety/falls/adultfalls.html>

## Balance is the thing that allows riding to be comfortable, confident and relaxed.

Even though we are not prey animals, ourselves – at least not for many millennia, our bodies react to being out of balance much as the horse's does. Our brains instantly sense our vulnerability and prepare our bodies to make corrections. Our muscles involuntarily tense in an attempt to recover equilibrium. Adrenaline is released into our systems to give us instant “fight or flight” power, which also can have the effect of redirecting our brain away from physical sensation<sup>4</sup>. These are all excellent responses if we are about to be eaten by a bear or need to save a friend from falling to their death, but not so much if we are trying to sit confidently on a horse and sensitively feel what is happening underneath our seats.

I often tell people that without balance, there can be no relaxation, and without relaxation, there is no feel. This is true, but without relaxation there is also no confidence. It is nearly impossible for our minds to be relaxed and confident if our bodies are tensed and awaiting a potential threat. Therefore, balance is the foundational building block to our confidence, both in and out of the saddle.

One final thought on balance. Balance is your body's position relative to the ground – or the gravitational pull of the earth. Balance on top of a horse is no different than balance on the ground. Many people think that they must stay in balance “with the horse”, but this is a misconception that results in many a rider leaning with their horse in a turn, collapsing in their waist or hips, jumping ahead of their horse in anticipation of the horse's “lift” off the ground, leaning forward in a transition to a more forward gait, and further upsetting the horse's own balance.

The rider must “move” with the horse in order to stay IN balance, but balance is ALWAYS relative to the ground. Many of us have heard that we should be riding in a position such that if the horse were plucked out from underneath us at any moment, we would land on our feet. This is just another way of saying that we must train our bodies to be in balance with the ground at all times.

The Dressage rider can help her horse make a balanced trot to canter transition ONLY if she stays in perfect upright balance with the ground during the transition. The jumper rider can help his horse over the fence only by staying in perfect balance with the ground on takeoff, flight, and landing from the jump. The Western rider can help his horse make a faster turn around the barrels only if he stays in balance with the ground as the horse makes the lean to turn. And the endurance rider will save her horse's stamina if she is fit enough to keep her own balance with the ground through the miles and miles of terrain changes that her horse must cope with.

If the rider remains in balance with the ground, no matter what the horse is doing with his own body, the horse will have a much easier time of balancing himself, and in fact will learn to “stay with” the rider, as much out of a sense of self-preservation as because it is simply easier and more comfortable.



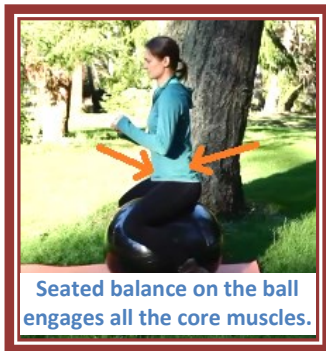
Excellent rider balance can mean the difference between a clean cross-country ride and a catastrophic fall or injury.

<sup>4</sup> <http://pitjournal.unc.edu/article/animal-instincts-human-body-psychological-and-skeletal-muscular-analysis-adrenaline-human>

## How do we train a rider's balance?

Any movement or exercise that challenges the body's stability will train balance. Instability causes the brain to run its calculations and make instantaneous adjustments to keep the body upright. Consistent challenge to the brain in this way will strengthen its facility in making these adjustments and improve its precision - reducing the tendency to over-correct. This results in progressively finer control of our balance.

In *Ridefit*, as mentioned above, we want to train balance in a variety of ways. This is to avoid entrenching a certain type of balance in the brain's synapses, and to keep the brain's plasticity at a heightened level. Since riding horses is done in a generally seated position, we start with balance training on the ball, in a seated position.



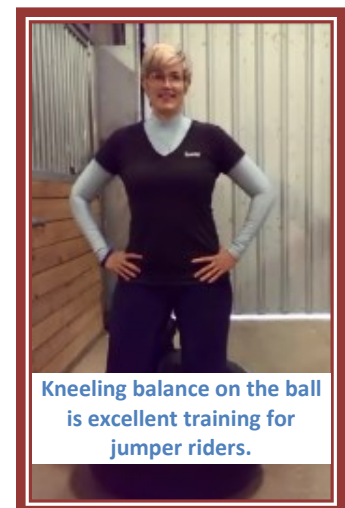
Seated balance on the ball engages all the core muscles.

Sitting on the ball while lifting the feet off the ground develops the rider's feel for sitting on the horse in a deep seat without gripping with the legs or holding onto the reins for support. The adaptations required to keep the unstable ball steady and balanced beneath one's seat bones engage the lower abdomen, the pelvic girdle, the psoas muscles, and the muscles of the lumbar spine. The rider is encouraged to let their weight become heavy in their lower body, and to relax their upper body, in order to both isolate the lower body and to bring the rider to awareness of their "seat" being the thing that supports and stabilizes them. This also very clearly exposes any tightness through the lumbar spine, of which many riders are completely unaware, but their horses feel very clearly!

Adding arm movements into the mix of the rider sitting on the ball with feet off the ground develops the riders' ability to use their arms and hands independently of their seats, developing the ability to keep balance and stability in the saddle, while allowing for the movement of the horse's head and neck.

Similarly, when we require the rider to sit or lie back on the ball and lift one leg and then the other, we are training the rider's lower body to adapt to lateral balance changes. This type of balance training develops the fine motor control and body awareness that riders need in order to apply precise aids, as well as sit "with" the motion and changes in the horse's balance without losing equilibrium or further upsetting the horse's balance. Lying back on the ball simply challenges the rider's brain in a different way.

Kneeling balance on the ball is excellent for jumper and event riders. This improves the sense of balance over the horse while in a half-seat or jumping position. It also develops strength in the correct areas of the body to allow the riders to stay in the half-seat without compensating for muscle fatigue with an inappropriate rounding of the back or leaning against the horse's neck, or relying on the stirrups to stay upright. These compensations are quite commonly witnessed in jumper riders – especially professionals who ride many horses over jumps in a day, and event riders who lack sufficient physical endurance to maintain the constant balance changes at speed on the cross country course. These are compensations that not only cause strain to the rider's body, but put tremendous stress on the horse, who must perform at his maximum athletic potential while packing a rider that is getting fatigued and relying more and more on him to compensate for that fatigue.



Kneeling balance on the ball is excellent training for jumper riders.



As you can see, the stability ball has many fantastic applications for riders. In fact, Ride*fit* utilizes the ball for many exercises that are not generally considered as balance training, as well, to keep the balance/stability challenge high throughout the entire fitness program.

Other exercises that are included for more coordinative purposes also challenge balance on many levels. These exercises will be discussed in greater detail in the next module.

## Additional Notes about Balance Training

Balance training causes micro-contractions of the muscles, and rather than working the large muscle bodies, actually exercises the attachment sites of the muscles, where they connect with tendons and joints. According to experts in biomechanics, 80% of a joint's stability comes from the tendons and muscle attachments. This brings up two points: first, that joint stability is improved through balance training, and second, weak joints compromise balance.

It's important to recognize, then, that riders with injuries which may have compromised their joint stability will need careful consideration. These weaknesses will show up as compromised balance on one side or the other, when that joint is integral to the balance. These clients should be encouraged to use the easier modifications of balance and coordinative exercises, until their bilateral stability is improved. It should go without saying that riders with acute injuries should be discouraged from doing any Ride*fit* exercises that rely on the healthy function of the injured part of their bodies. However, the trainer must sometimes set appropriate boundaries for overly eager clients – especially “horse” people who can often be witnessed pushing through injuries without much concern for their own long-term wellbeing.

Balance training relies heavily on a healthy spinal column, as well. Individuals with compromised spine function whereby there are impingements on the spinal cord, or in any way restricted in the free flow of spinal fluid, can significantly compromise a body's ability to balance properly. The exercises discussed in the stability and mobility modules can significantly improve these issues, allowing riders to restore mobility and function to spines with minor restrictions.

Additionally, clients with vision impairments, inner ear congestion or infection, and those who suffer from vertigo may never be able to be adequately improve their balance until and unless the impairment, infection or vertigo can be resolved.

Balance is central to a rider's ability to safely develop skill, timing and effectiveness on horseback. It must be trained properly in order for riders to reach their full riding potential. Well balanced riders can also provide their horses with the support they need for long-term soundness.

### Terms and Definitions

#### ***Biomechanics***

The study of the structure and function of biological systems by means of the methods of “mechanics.” – which is the branch of physics involving analysis of the actions of forces.

#### ***Kinetics***

The study of forces acting on mechanisms.

#### ***Kinesthesia***

The sensation of movement or strain in muscles, tendons, and joints; muscle sense.

#### ***Neuromuscular control***

the unconscious activation of dynamic restraints occurring in preparation for and in response to joint motion and loading for the purpose of maintaining and restoring functional joint stability.

#### ***Proprioception***

The sense of the relative position of neighboring parts of the body and strength of effort being employed in movement.

# Module 2 Questions

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1. What is balance?
2. Why is balance so critical for riders?
3. Why is balance in movement more important for riders than static balance?
4. What types of things can compromise a rider's balance?
5. In what way are balance and asymmetries related?
6. Describe three exercises that improve rider balance.
7. What situations might a rider find him/herself in that require an excellent sense of balance?
8. Why do riders with weakened or injured joints have difficulty with balance?