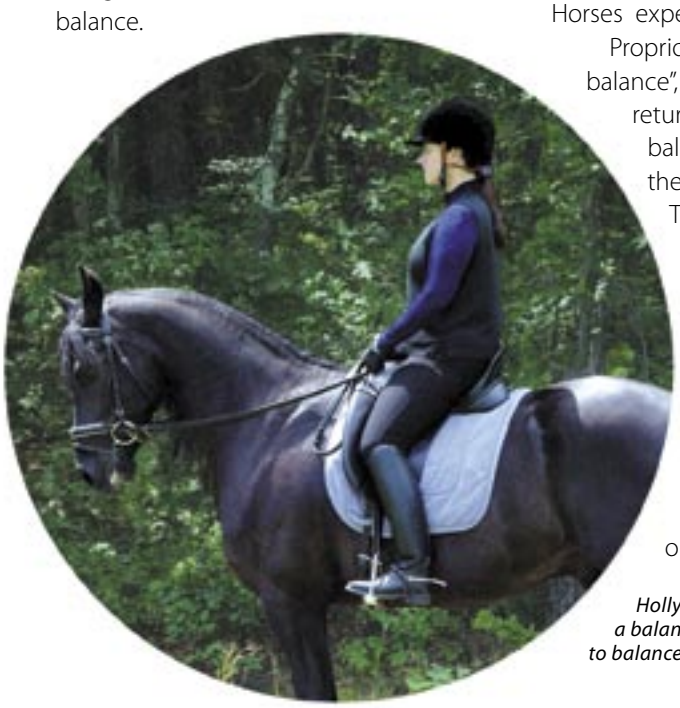
Holly Mason, Dressage Instructor and Biomechanical Specialist from the US discusses Proprioception and its role in riding.

Our Sixth Sense of BALANCE

Proprioception – Big Word, Simple Concept

Proprioception is a system within our bodies that deals with the issues of balance and dexterity. There are nerve endings called proprioceptors that surround the joints of all mammals. These nerve endings develop greater sensitivity through use and become the essential element behind more sophisticated balance and motor skills. It is the system that backs up the statement "practice makes perfect".

There are two parts of all mammal brains that control movement. The upper brain, the cerebral cortex, is the cognitive thinking center. The lower brain, the cerebellum, is at the very top of our spines, surrounds the brain stem and guides the most basic motor skills of balance.



Holly Mason on Rinze demonstrates a balanced position that allows the horse to balance correctly as well.

The upper brain understands how to make a body part move and tells it to do so. We consciously put the reins over the neck to prepare to mount. The horse is asked to step up to the mounting block and consciously steps and squares up on our command. This is all conscious proprioception.

Unconscious proprioception involves more of the nerve endings that surround our joints and tell the brain where we are in space. These specialized nerve endings can be damaged in an accident or injury therefore they have the ability to be turned-on, tuned-up or shut down due to lack of use. Losing one's balance is not part of aging. People start to lose their balance as time goes by because, generally, they move less and many of these proprioceptors are no longer used. Horses experience these problems, too.

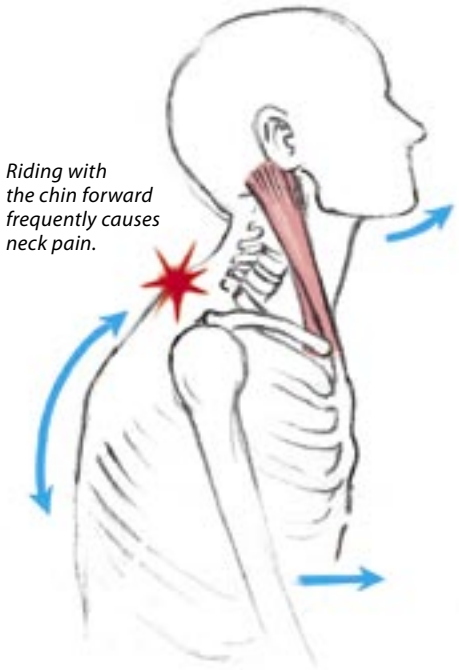
Proprioception, as our "sixth sense of balance", helps humans and horses return to the center of balance if balance has been disrupted and then helps to maintain balance. There are more proprioceptors around your sacroiliac joints (where the pelvis attaches to the base of the spine) and in your jaw joints (TMJs) next to the ears. These two placements determine balance in humans – hips under ears create straightness through our center of gravity.

As we struggle to acquire more sophisticated and useful balance, our proprioceptive network helps us retain and remember more correct motion. It takes about 3 months to change a fitness level in ourselves or our horses. This is also about the same time it takes to "retrain" proprioception to a newer, better sense of balance.

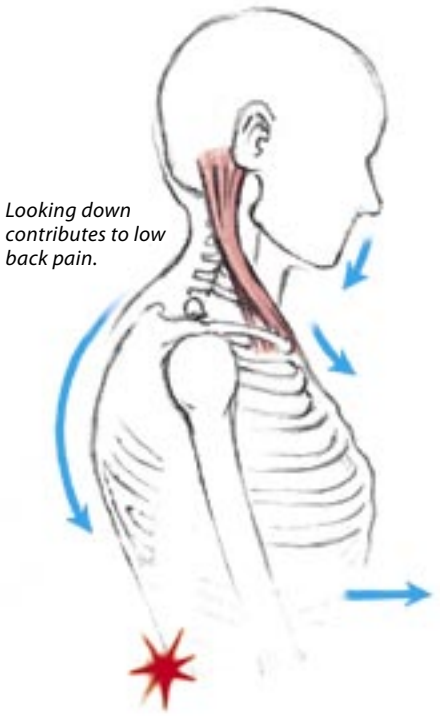
Take responsibility for your own balance by correctly aligning your neck.

The curves of the human spine and the alignment of the actual vertebrae are structurally astonishing. Humans possess a shallow "s" curve to their spines and it is designed to compress and elongate, supported by ligaments and muscles on all sides. If we work well with gravity the spine is an excellent shock absorber.

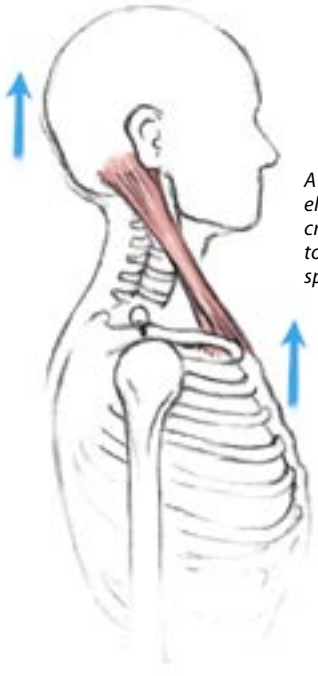
From a horse's point of view, a person who sits up tall in careful balance is an easier weight to support and predict. If the rider's weight falls directly but gently into the center of the saddle, absorbing some of the impact of each stride with his or her own spinal flexibility, the horse is free to swing in their backs. However, even the smallest deviation in the torso alignment will disrupt the horse's rhythm and flow. Instead of focusing energy on moving fluidly forward underneath you, the horse will actually deviate slightly from correct alignment with its body in order to get under your (incorrect) center of gravity. This is how horses bodies mirror ours.



Riding with the chin forward frequently causes neck pain.



Looking down contributes to low back pain.



A correctly elongated neck creates superior torso balance and spinal integrity

If you make the common mistake of tipping your head forward to look down, that position changes the curves of the spine and reduces the ability of the spine to follow the horse's motion correctly. This increasingly tense position also shifts your body weight forward and puts more weight onto the horse's forehand with a subsequent loss of impulsion and range of motion in his shoulders. Sadly, the long term effect of riding with a head which is forward of your center of gravity is lower back pain. In other cases it may be chronic neck pain - this is common in people who don't just look down but rather jut their chins out and forward, collapsing at the base of the skull into the shoulders." (See Diagrams)

The shoulders themselves are vital to the integrity of the whole system of alignment and flexibility on horseback. When the shoulders and elbows stay back, with the shoulder blades flattened, the line from ears to elbows to hips is achieved and the weight of the torso is truly stable.

The sternocleidomastoid muscle (SCM - the reddish muscles in diagram) attaches on the collarbones and sternum at one end and on the skull at the back of the ear at the other end. This muscle must stretch and become long to hold the head so the ear and the shoulder socket align. Most people, who do not practice straightness throughout the day, tend to have long muscles at the back of the head and neck, and short muscles in the front. The SCM, scalenes & upper trapezius muscles all contribute, if used incorrectly, to the vicious cycle of "head forward". After years of incorrect posture, off your horse, these muscles get "locked" in position.

Years ago a dance instructor showed me an exercise she calls "Elf Ears", designed to get teenagers to balance their heads on their spines correctly. Grasp your ears with thumb and forefinger, just back from the top at about a 10 o'clock position. Pull backwards and upwards to feel your chin come in and an elongation up the back of your neck. This stretches your SCM muscle and shows you where your head belongs in relationship to your shoulders. As you pull the ears up and back you will also feel your sternum lift and your pelvis become more upright. Notice how profoundly your head position relates to the position of the entire torso, pelvis and spine.

Lifestyles of the posturally challenged

Due to contemporary lifestyles which include immobility in cars and sitting at computers for long periods of time, almost everyone needs to reverse basic postural patterns by stretching and opening the chest as often as possible. Ask yourself how much time you actually spend in the saddle with the emphasis on correct position versus the time you spend moving through life in merely OK balance. Your proprioceptive pathways are trained by repetition and a daily routine of incorrect posture makes superior riding practically impossible.

The basic alignment of pelvis and hips correctly under your shoulders is essential for good riding. Assessing your postural issues in mirrors is as valuable in daily life as it is in a riding arena. Often, small adjustments to your head carriage can free up your shoulders and back and allow your horse to show you new responsiveness as well as increased fluidness in his movement.

However, assessing your own straightness and flexibility is tricky to do just by looking in mirrors. Massage therapists are trained to help in this regard, as are chiropractors and any number of movement specialists, such as yoga, Pilates or dance instructors. Take responsibility for your own balance and make the beneficiary of your hard work the ever generous horse. The more balanced you are throughout your entire proprioception network every day, the more balanced your horse will become.

Illustration by Sandy Rabinowitz
Photo by Heather Farrar

Holly Mason *lives in New England and teaches in the US and Canada. She specializes in the biomechanics of horse and rider and has had articles published on the subject internationally. Her video "Focus on Flexibility" is available on her web site dressagebydesign.com.*