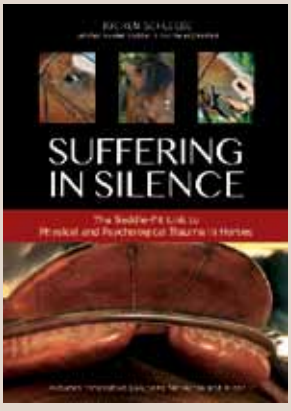
UNDERSTANDING SADDLE FIT

The horse's asymmetry must be part of the equation.

By Jochen Schleese • Photos courtesy, Trafalgar Square Books



Author Jochen Schleese has been a master saddler and saddle fitter for more than 34 years. He completed his journeyman's and master's certification at Passier and Sohn in Germany and has since developed a three-year certification program for the trade of saddlery together with the Ontario Ministry of Skills Development in Canada. He teaches his Saddefit 4 Life philosophy worldwide and his book, Suffering in Silence*, explains how the fit and position of the saddle can affect both you and your horse. In the following excerpt, Schleese addresses the horse's asymmetry and how it must be part of the equation when properly fitting him with a saddle. Used with permission from Trafalgar Square Books. The book is available from www.EquineNetworkStore.com.*

There are many theories concerning the natural unevenness or asymmetry of horse musculature. Some scientists think there is a genetic predisposition, as in humans, to being left- or right-handed. Even the governing body of riding in Germany, the FN, recognizes in its rule books that most horses are born with a "natural asymmetry" and furthermore that "similarly to the left- or right-handedness in humans, this predisposition is cerebral, determined at birth. It is further supported by the fact that the forelegs are smaller than the hind legs" (*Richtlinien für Reiten und Fahren [Guidelines for Riding and Driving]*, FN 2005). Others feel that this natural asymmetry could be caused by the way the equine embryo grows in its mother's womb.

In my opinion, however, this "natural" asymmetry is not really natural at all; rather it is the result of domestication and the conditions under which we keep our equine friends. In the wild, the horse moves all day, more or less slowly, in search of food, and while grazing for most of its waking hours it can cover over 20 miles of ground each day.

This does not work for domestic horses, even when they are allowed ample paddock or pasture time. Horses have less and less freedom to run around. They often stand in their stalls 23/7, get fed in one spot so they don't have to graze for their food and don't have to shift their body weight around naturally during the course of their day. Even minimally being let out to pasture or put in a paddock imitates their ability to move in the wild.

That's why I think that "natural asymmetry" develops during the growth phases of the horse. My personal observations are that most of the horses turned out in a flat pasture area generally have their left leg forward, which means that most of the weight will be on the right foreleg.

This position could be due to the fact that the appendix and most of the gastrointestinal organs are situated on the right. During digestion, these organs are active, which means they will be en-

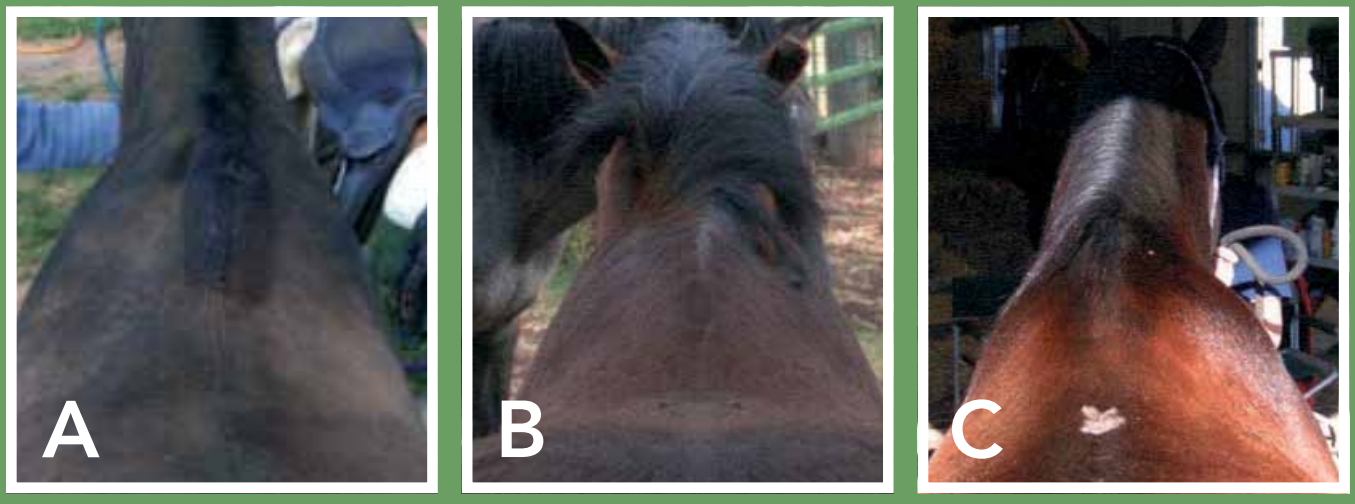
Most horses can be observed with their left front leg forward during grazing.

gorged with blood. This causes pressure on the rib cage on the right side, which the horse compensates for by bending left. This puts extra weight on the right foreleg while the left is splayed to the front. When there is enough roughage available, a horse will graze for about 17 hours a day with his head lowered and his weight on the right leg. This can lead to a change in conformation of the right humerus because of the constant weight.

"When a horse is born, it must adapt its muscle structure to match its native surroundings, whether natural or man-made. I have seen the physical changes a horse goes through once it has been captured from the free environment of pasture and then confined to a small enclosure." (Anthony Gonzales, PBM: A Diary of Lameness, p. 61, REF Publishing, Manassas, Virginia, 1986)

In my 34-plus years of working as a master saddler and saddle ergonomist, my technicians and I have measured and documented the results of over 150,000 horses on pretty much every continent (except Antarctica!). Most of these horses were housed in stables or living on pretty flat pastureland—and most of them had a definite increase on the left side over and behind the left shoulder, with a shoulder blade that was obviously higher and further back on the left.

Some of the horses we looked at were kept outside in more hilly topography. They spent night and day living on this terrain. Because of their constant back-and-forth movement during grazing, they would constantly shift their weight to the "downhill" leg (just like skiers put more weight on this ski to stabilize their balance). Because of the continuing change in directional grazing, they would more evenly balance on both the right and left legs, alternating the one carrying the weight. Most of these horses actually showed a more evenly structured musculature on both sides—the 10 percent of "ambidextrous" horses. However, the development of this more even skeletal structure is really only an influence during the first two years of the horse's life—thereafter, it really has very little impact.



From the measurements that Jochen Schleese has accumulated over the last 30 years from about 150,000 different horses, he has determined that 70 percent are more strongly muscled on the left (A), 10 percent are evenly muscled (B) and 20 percent are larger on the right side (C).

What I can conclude with certainty based on my observations is that a good 70 percent of these horses that were measured over the years have a more strongly developed shoulder and shoulder muscles with a farther-forward right shoulder. This is what we call the "natural asymmetry" of the horse.

Our general methodology in working with horses would also seem to underline the affinity we have with the left side of the horse. We lead on the left, we saddle from the left and we mount from the left. Many horses demonstrate uneasiness when approached from the right and even when groomed on the right. Perhaps it is because they instinctively want to protect their right side, which houses the digestive organs. This seeming anomaly can also be seen when observing horses fighting. The horse will turn his left shoulder toward the aggressor.

When riding, it is often easier to ride to the left and canter on the left lead. Also, most horse races go to the left (counterclockwise), perhaps because the horse's natural asymmetry is almost always stronger to the left.

It is a very important point to train and ride the horse straight. Even the German Training Scale clearly comments and describes the methods that define the rider and provides procedures for how to train and ride horses to help them become straight.

It is possible for the rider to counteract the natural asymmetry of the horse by training in such a way that the serratus and the pectorale muscles develop evenly on both sides. However, neither trainer nor veterinarian—nor blacksmith, nor saddle(r)—will have any influence on the skeletal structure (even though the growth plates do not entirely close until around 6 1/2 years).

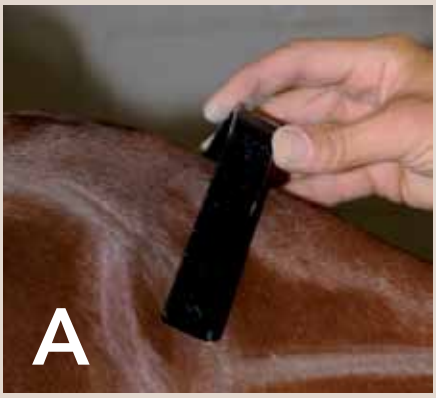
How the Horse's Asymmetry Affects Saddle Fit

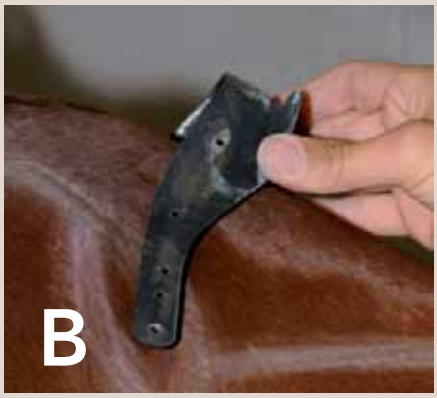
The horse's asymmetry has huge ramifications on the consideration of what saddle to buy and how to fit it properly because the saddle-support area begins immediately behind the shoulder blades. The natural unevenness is not only seen in the muscles and skeletal structure at the forehand, but also in all the horse's joints and most of the rest of his anatomy.

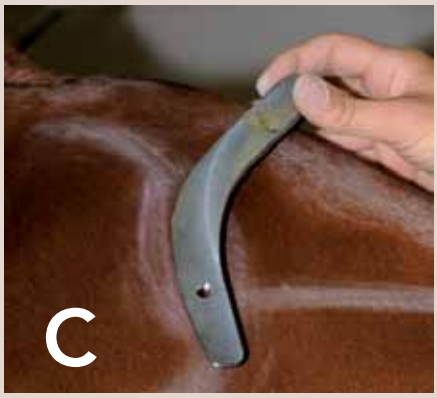
The saddle needs to accommodate and be fitted to the unevenness in the horse's frontal anatomy, especially the size and position of the shoulder blades. Muscles can be developed and changed, but bones, as a rule, cannot. It is very difficult to determine whether or not there are anomalies in bone structure in the humerus. Even with today's advanced technology, the veterinarian will not be able to X-ray this area because an X-ray plate cannot be put between the front two humerus bones. Various other invasive visual diagnostic tools are not (yet) widely available in their applications for horses because of the size of the machines required for this technology. So we really don't know whether a horse's innate asymmetry is due to bone structure or muscle formation, and that's why we cannot foresee how effective training methods are to alleviate this occurrence.

In particular, the shape and position of the gullet plate—the stiffest and most stable part of the saddle—need to accommodate the unevenness in the horse's anatomy during saddle-fitting. Its necessary function cannot be substituted or eliminated by reflocking, shimming or the use of other special orthot-

Fitting the Horse's Shoulder







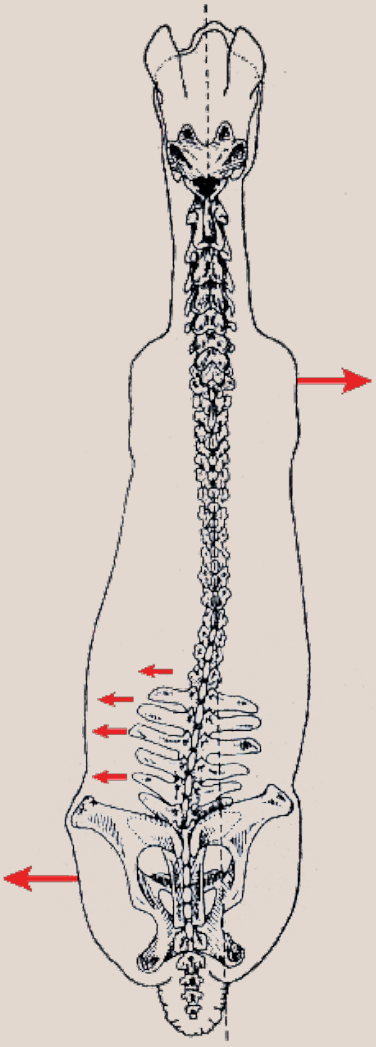
To protect the cartilage cap at the tip of the shoulder blade, it is crucial to fit the gullet plate properly behind both shoulders (especially the larger one). The gullet plate is attached to the saddle tree under the pommel area and inserts left and right underneath the tree points (which are essentially the two ends of the pommel).

All the gullet plates shown here are placed too far forward. Photos A and B show gullet plates with forward-facing gullet points, both of which impact the shoulder cartilage even when a saddle sits behind the shoulder blades. Photo C shows a gullet plate with rear-facing tree points that would accommodate the shape of the shoulder and protect the cartilage if it were positioned correctly behind the shoulder blades (see Photo F). The point here is that regardless of the shape and design of the gullet plate, the tree points (including the gullet plate) must be fitted to both shoulders. In all three of these photos, the gullet plates are not fitted to the left shoulder—even though they fit on the right.

One of the most common reasons for a horse to indicate a subluxation in the spine or the SI joint is because the gullet plate has not been fitted to accommodate his larger shoulder, which in this horse is the left. This twists the saddle to the right and puts excess pressure on the back of the left panel and the left side of the spine, which the horse tries to avoid by deviating to the right through his right shoulder.

The diagram to the right shows a subluxation due to pressure at the SI joint as the result of a saddle shift like this. The arrows indicate that the left lumbar area (including the SI joint) bends to the left while the horse deviates through the right shoulder (it only looks bigger on the right side because the right shoulder has been thrown out by the poorly fitting tree that has not taken the larger left shoulder into consideration). A common problem is that many people try to accommodate this situation either with crooked stuffing or with saddle pads and/or shims that just make the situation worse. The only solution is to be able to adjust both sides of the tree individually, without twisting the tree itself.

The gullet plate gives the saddle enough stability to sit balanced on the horse's back without slipping to the left or right. The gullet plate supports the tree at the front and gives the saddle the rigidity to keep the saddle off the withers at the pommel without pinching the sides. It needs to be long enough and shaped anatomically correctly to avoid impacting the nerves here (especially Cranial Nerve 11—also called the "spinal accessory nerve," which is a crucial reflex point).



Photos D and E show gullet plates that are not shaped correctly and are not long enough to avoid pinching the withers. Their inherent design flaw will make them uncomfortable regardless what breed, age or type of horse they are used on. It is clearly recognizable using the chalk outlines that although the tree points shown in Photo D stay off the cartilaginous plate at the tip of the shoulder blade, they will still dig into the trapezius muscle.

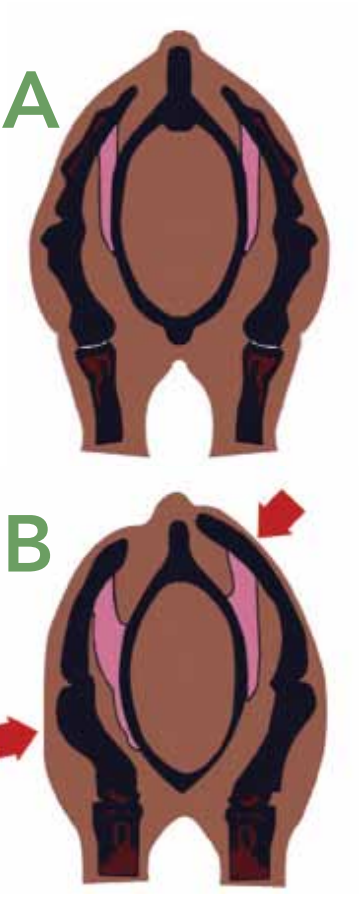
In Photo E, the short, forward-facing tree points of this gullet plate not only will dig into the

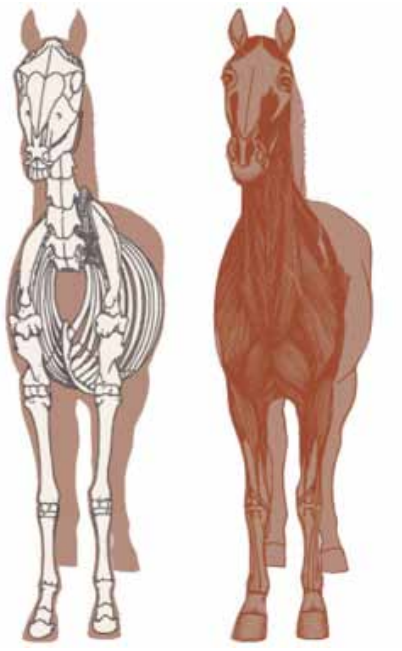
trapezius insertion, but also hit the shoulder cartilage, possibly damaging both areas.

Photo F shows a gullet plate with desirable rear-facing tree points that are long enough to support the tree's position in the saddle-support area, stay away from the trapezius and keep the pressure off to allow maximum freedom of movement at the shoulder.

ics in the panel area. Because of the pretty common occurrence of unevenness at the horse's shoulders, it is usually necessary to fit the gullet plate asymmetrically in order to achieve this necessary support equally well on both sides. As a matter of fact, if this crucial piece of saddle-fitting is ignored, and a saddle with a symmetrical gullet plate is put on a horse with an asymmetrically muscled shoulder, it will inevitably fall to one side as it is pushed there by the more heavily muscled shoulder (usually the left twisting the saddle to the right). You will see many pictures of riders from behind, sitting on a saddle that seems to have slipped to the right.

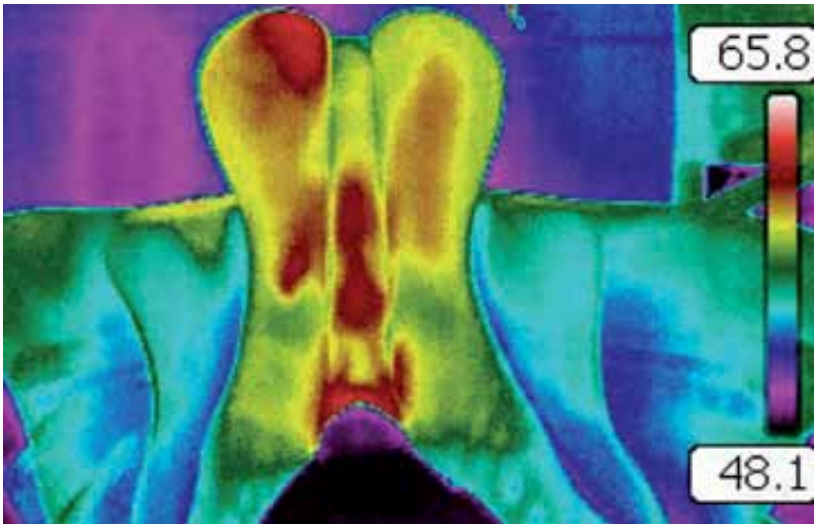
For example, let's say a horse with a bigger left shoulder is fitted with a saddle where the gullet-plate shape has oriented itself to his smaller right shoulder. This means, in effect, that the gullet plate is





LEFT: The cross sections show: (A) an even skeletal structure and (B) a distinctly higher left shoulder blade, with a stronger humerus on the right.

ABOVE: The frontal view of the horse shows the skeletal and muscular structures.



A thermographic image shows uneven pressure areas on the underside of a saddle: at the back left, on the underside in the gullet area and at the withers. Ideally, you never want to see increased indications of pressure at the pommel or in the gullet. Look for even contact all the way down the panels of the saddle, with no hot spots.

really too small for the left side. As a result, during movement, the bigger left shoulder will displace the saddle over the smaller right—it's simple physics! Farther down the horse's back, the saddle will actually put pressure on the left side of the spinal column because it no longer lies in proper position in the saddle-support area, which keeps the spinal vertebrae clear of the panel. The saddle, which is being displaced along its horizontal axis, will cause the rider to shift to the right as well. The rider, who uses her vertical axis to balance in the seat, will counteract this fall to the right by shifting her weight more to the left. The rider will find little support from the saddle under her left buttock and may collapse further at the left hip. This shift in weight will further add pressure to the saddle on this side, shifting it even farther to the right. Sound familiar?

Of course, this crooked rider will now have

difficulty giving the horse the proper aids, especially the subtle muscle contractions and shifts in weight that normally cannot be seen. Increased difficulty in a right canter lead is often indicative of a saddle that has shifted to the right somewhat. The shoulder, which rotates 3 to 4 inches during movement (against and under the saddle tree), will also influence the action of the forelegs versus the hind legs.

On the stronger left side, behind which the saddle is now more strongly anchored, the horse will feel the first resistance to movement. The continuous pressure of the saddle on the left side of the vertebral column increases stress to the SI joint, which can cause a crooked pelvis and result in difficulty in the right hind leg—all the way to complete lameness. Inhibition of freedom of movement in the hind leg, of course, becomes evident in the rhythm of the gaits and causes problems in the knee and stifle as well. Straightening the horse is key to preventing this type of issue from appearing.

However, this does not mean that saddles should be manufactured using crooked trees or uneven flocking. It is the necessity for an adjustable gullet plate—in width and angle—that is the point, and it is here that the unevenness of the horse's anatomy (mainly in the skeletal structure) can be addressed as necessary because the horse will change or even become more symmetrical.

The blacksmith does not usually form the hoof to fit the iron; he fits the iron to the hoof (except for orthopedic purposes). In the same vein, a gullet plate should be formed to fit the horse, not be available in only one permanently fixed position.

A saddle will always show a tendency to slide forward anyway, given

that the rib cage gets wider toward the back, and, as I have said before, it's another law of nature that items will generally choose the path of least resistance to find their resting position. That is why the girth will also seek the narrowest spot on the chest and pull the saddle along with it. Only a saddle that has been properly fitted to accommodate the horse's individual shoulder structure will stay in its proper position behind the shoulders, in balance over the center of gravity, without shifting to the left or right.

When the gullet plate has been adjusted to accommodate the natural unevenness of a horse's shoulder, the saddle should lie straight on the horse so the rider can sit properly and in balance and there will be no unnecessary pressure on the horse's vertebrae or at the shoulder.

So what happens to your saddle when you need it for a horse that has the opposite shoulder bigger? This is where the advantage, or actually the necessity, for an adaptable tree with an adjustable gullet plate really comes into play because the fitter should be able to make any necessary changes as required for any horses over the life of the saddle. The job of the rider is to ride the horse straight; the job of the fitter is to make sure that the saddle (i.e. the tree and the gullet plate) is continually fitted correctly to the changing conformational requirements of the horse.

This allows optimal interaction between the vertical axis and weight distribution of the rider with the horizontal axis of the horse's back. The saddle needs to be balanced in all directions: front to back and top to bottom. Only then will both rider and horse vertebrae be able to work as nature intended, protecting their bodies from long-term damage while they move in harmony.