SADDLE FITTING

Saddle fitting is a very interesting and broad topic. So broad that certain issues cannot be discussed here due to their lengthiness or may require live demonstrations to illustrate.

Let's begin with your horse's back and your saddle. Signs of an ill-fitting saddle are:

1. White hairs at the withers or side of ribcage.
2. Sores, tender or painful areas anywhere on the back, which may be raised, hot, swollen, or just sensitive.
3. Swellings or edema after riding.
4. Dry patches where otherwise in an area under the saddle should be sweaty.
5. Having to readjust and/or over tighten the girth to keep the saddle in place.
6. The horse may travel crooked or resist training.
7. The horse may stumble or drag toes.
8. The horse may exhibit obscure hind leg lameness.
9. The horse may exhibit high levels of tension and uneasiness when saddled or ridden.
10. Atrophy of muscles on both or one side of withers.
11. The horse may exhibit manner changes - backing, reluctant to go down hills, objects to be saddled, swishing tail, pins ears, hypersensitive to grooming, won't stand still to be mounted, horse lags or bolts, wears shoes differently, etc.

Other problems that may lead to sore backs may develop by improper riding or riding out of balance. This can also be created by uneven weight distribution in saddle bags or a rifle scabbard on one side. Sores can develop from dirty pads and girths or a wrinkle in the pad and even fir needles or sage brush leaves that brush off in front of your saddle working their way under the pad. Fleece lining under the saddle may be worn off and expose screws, brads, and even a joint of leather. Pads is a very lengthy subject to get into in this discussion. There are so many variations and high tech pads available today this subject will not be covered with the exception of a common problem that exists when a horse has an ill-fitting saddle which is usually already too tight and the rider feels the solution is to add another pad. What this does is create more compression and pressure to the horse's back. This can be likened to you wearing a small shoe on your foot, and you want to put on an extra pair of socks for comfort, and you create a tighter fitting shoe!

Let's first consider the shape of horses' backs and rib cages. There are roughly three shapes of backs and the angle that ribs come off of the spine.

1. Ribs that come off the spine flat and then bow out quite a bit creating a "table top" back with well sprung ribs such as warm bloods, Morgans, and some Arabs.
2. A slight angle to the ribs which spring out slightly but not as much as No. 1 such as Quarter Horses and Thoroughbreds.
3. Ribs that come off the spine at a steep angle and do not bow out much such as Tennessee Walkers, Paso Finos, and mules.

The horse has no collar bone, and the front legs need to be free to move or float over the rib cage. Therefore, make sure your saddle does not confine or impinge on the shoulder blade. The musculature around the rib cage is comparable to the rib cage fitting down in a sling. The top line is composed of two large, long muscles on either side of the spine causing the back to rise and fall and twist and turn. Thus causing these muscles to fire and become sore under ill-fitting conditions. That is why the saddle tree must fit properly on these muscles and not on the spine. The bottom or underline are muscles below the rib cage and behind it. The two front legs are attached to the body by muscles and tendons which at the top forms the withers, and the muscles on the withers fall back and down toward the ribs which causes the front legs to create the motion. This is a very crude picture of a horse's back and how it moves. Now we need to examine how a saddle needs to adapt or fit a particular horse's conformation.

Let's examine the saddle construction dealing mostly with western and endurance saddles, but many of these principles will still relate to the English saddle. The saddle has three basic systems.

1. The Rigging which holds the saddle on the back.
2. The Seating which is a level seat for the rider's pelvis and proper leg position.
3. The Skirting protects the horse from the motion or swinging of the stirrup leathers.

Underneath these three systems is the tree. Considering the western saddle the tree consists of two bars and two arches (one of which is the cantle and the other is the swell). The other component is the horn. The top part of the tree base creates the seating system. The bottom part of the tree with the rigging system holds the saddle to the horse's back. The bottom of this tree must accommodate and rest on the muscles on either side of the spine as the spine rises and falls and twists and turns. The most important part of the saddle, in my opinion, is the tree which consists of three elements which form the bars.

1. The Twist - this is the center of the bar that fits the back snugly which begins at the transition of the withers down the back and must conform to the rib cage.
2. The Flare - the profile of the wither changes as the horse moves and needs approximately one inch of space to accommodate the movement of the withers and still have proper saddle fit. The flare dictates the width of the gullet or spread of the bars as to proper fit of the saddle. An example would be, if the gullet is too narrow, it won't allow the saddle to sit down properly in the front.
3. The Rock - is the top line or the front to back curvature part of the saddle tree that allows the up and down motion and stays or fits the rib cage.

All these three elements must fit properly as to contact and rock and twist. If improper contact at the shoulder, back, or loin, it will result in an ill-fit and pressure sores will develop. Some ways to assess the above fits is to place the flat of the hand behind the withers and down under the saddle without a pad on the horse. The hand should comfortably pass between the saddle and withers. This is where the flare is important so as not to dig into the withers but flare outward to accommodate the withers. Then take the flat of the hand under the back of the saddle with space so that there is no jabbing into the loin just behind the saddle. The third area to check is to throw the stirrup up over the

saddle, place the hand flat on the horse's side of the rib cage and the bottom of the tree should fit flat and conform to the horse's back. There should be no space between the bar and the horse's back. Thus the middle two thirds of the saddle you want maximum contact, tapering off of the back at the front and rear of the bars. The opposite of this is "bridging" which creates contact at the withers and the lower back but no contact in the middle portion of the tree. This type of saddle results in pressure sores and tense muscles which constrict lateral movements as well as affecting movement at the lumbar sacral junction. These horses will carry their head and neck high and drop their back to relieve pain in the lower back. A quick word on treeless saddles - although they may eliminate pressure sores at some places, I feel they are fine for very short training or competitions such as barrel racing. For long distance riding or all day pleasure rides the treeless saddle puts all the weight of the rider directly on the spine rather than on the long muscles along side of the spine where the weight of the rider and saddle need to be placed. Try putting hand pressure on a friend's spine and rub downward. Then take both hands and rub down with the same pressure on the muscles to the side of the spine and see which feels better.

Simple tips to check saddle fit. First consideration is the saddle must sit in the correct location without a pad before determining a fit can be made.
The saddle needs to sit back behind the shoulder blade, thus making the shoulder free to move without restriction.

1. Step back and look at the saddle. The deepest part of the seat should be parallel to the level ground. The cantle should be slightly higher than the pommel, this depends on the type of saddle. The cantle of a deep seated dressage saddle will be higher than a cantle on a shallow close contact saddle.
2. If the deep part of the seat is not level with the ground and is inclined forward, chances are the saddle is too wide for the horse and the gullet has little clearance and may sit down on the horse's spine. This horse with this type of saddle will become extremely sore at the withers, carrying his head high, a shortened stride in front, and the rider will feel pitched forward with difficult leg position.
3. If the pommel is level with the cantle, and the deepest part of the seat is inclined back, the tree is probably too narrow. This may also cause sore withers, and the rider will hit the pommel during a rising trot.
4. Place one hand on the pommel or horn and the other on the cantle and alternate pressure from one hand to the other. If the saddle rocks, then this saddle does not fit either. The less motion you get the better the fit.

Your horse's conformation changes over his lifetime. The young, growing or developing horse is narrower with a straight top line as exhibited by a 2 to 6 year old. The horse between 7 and 15 years will develop more fully and is wider and more muscled and the back begins to change. The older horse, 15+ years, now begins to get slightly more swaybacked and begins to get muscle atrophy around the withers and hip bones. Therefore, the saddle that fit the horse perfectly as a four year old, may not fit him perfectly as a nine year old and even less so when he is twenty. His changing age,

conformation, and saddle fit all need to be considered so as to make your horse comfortable so he can do the job you are asking of him in a way that will keep him sound and happy.

Let's look at the three systems of the saddle once more.

1. The Rigging System, as you recall, keeps the pressure in the center of the saddle. There are four ways to accomplish this.
2. Hunt seat saddles - the pressure is in the center of the middle of the saddle seat.
3. An inverted triangular rigging uses the front and back part of the saddle to get pressure in the center of the saddle.
4. Double rigging or full double rigging is most common in western saddles and utilizes equal pressure in front and in back of the saddle.
5. Different positions in the western saddle include:
    a. Full position has a line down the center of the horn and swell to the rigging.
    b. 7/8 position is one inch back of the horn or behind full position.
    c. 3/4 position is one inch back of 7/8 position or two inches behind the horn.
    d. 5/8 position is one inch back of 3/4 position or three inches back of the horn.
    e. Center fire is where the rigging is straight down from the center of the seat.

Three quarter position is a good position for most saddle riggings. Front and rear cinch should be equally tight. If the front cinch is too tight, this will increase pressure on the withers which is a common problem and therefore will produce white hairs and pressure marks.

Seating System. The rider needs to be in a balanced position on the top of the bars, along with the two arches forming the seating system. The low point of the seat should fall in the same vertical line as the rider's shoulder, hip and heel which represents the correct balanced position.

Skirting System. This includes three parts.

1. Protection for the horse from motion of the stirrups and fenders.
2. The base should have sheep skin padding to avoid chafing.
3. The skirt should be flexible. A note here, that in-skirt rigging is not good because it pulls the skirt into the horse's shoulder.

Saddle factors to consider.

1. It must fit the shape of the rib cage.
2. It must be open in the front with room at the shoulders so that the flat of the hand can be placed under the front of the bars and be able to move the hand downward.
3. It must be open in the back of the saddle with a slight rise off the back and should again enable a flat hand to slide underneath the rear of the saddle.
4. The underside of the tree or bars should lie snug on the back with even contact.
5. The rigging should preferably be 3/4 position.
6. The seating should be level with the ground surface.

In summary, all saddles have three basic principles.

1. Pressure in the middle.
2. Open in the front and back.
3. Pressure on the rib cage.

Measurements. A quick word on measuring a horse's back with various tools.

1. The 24" flexible curve which is a drafting tool or a flexible wire. This can be conformed to the horse's withers or back and then traced on a piece of paper. The first measurement which is the most important is just behind the last hair of the mane.
2. Saddle tech gauge is a saddle pressure measuring device.
3. The Equi Measure kit is a flat piece of molding material that is heated, laid on the horse's back and formed to his conformation which cools in 5-10 minutes and leaves a mold resembling his withers and back.
4. Computerized pad is placed under a saddle which gives a multiple color scan showing where the pressures are.
5. The simplest of all is to check the sweat pattern after a good hard ride. It should reveal even sweat marks. Dry areas indicate too much pressure which shut down the sweat glands, and these areas should be checked for tenderness or pain.