



BALANCE ... the Way forward ...

Basic bio-mechanics of the ridden horse with a specific emphasis on the impact saddling has on movement, soundness, performance and health.

Ever wondered why your horse looks like Picture 1 when he is free and Picture 2 when he is ridden? Or did he once look like Picture 1 when he was younger and now looks like Picture 2?

1.



2.



Would it surprise you to know that horse 1 is twice the age of horse 2?

Before we go any further there are four important facts to remember about horses.

- Horses have an amazing ability to organise their bodies into compensatory patterns that make their movement look normal, even when they are considerably disabled. This is what keeps them alive in the wild, as movement that is abnormal will attract the attention of a predator to that individual.
- They are by nature creatures that follow the line of least resistance. This is the basis for all training techniques and the reason we can get on and ride them in the first place!
- Horses do not vocalise discomfort or pain like a dog or a pig. They will express instead in a behaviour that is easy to label as 'difficult', 'temperamental', 'resistant', 'emotional' etc.
- The majority of horses have black skin which makes it very difficult to see bruising.

These four peculiarities that horses have can get them into a lot of trouble when they live a domesticated life with human beings.

The research that the BALANCE organisation has been doing since 1989, and will continue to do, has shown that one of the main reasons for the deterioration in the horse's natural movement, behaviour, soundness and health is the saddle.

There are two issues to consider when choosing a suitable saddle for your horse.

1 DESIGN FEATURES

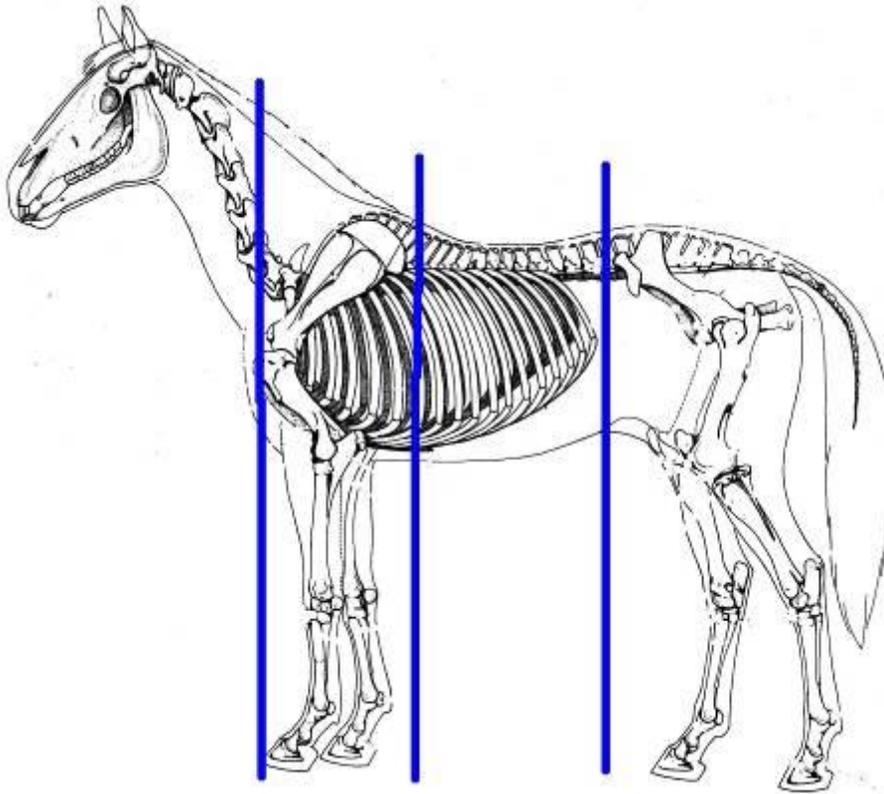
What does the underside of your saddle look like? Do you know how the design features will impact on your horse's body, particularly when the weight of the rider is added?

2 THE 'FIT'

How was your saddle chosen for your horse? Do you know how the 'fit' affects natural **movement**?

Let's take a look at the horse's basic anatomy and natural bio-mechanics.

BASIC EQUINE CONSTRUCTION



Let's look at the horse in a slightly unusual way. This diagram has been divided into four parts. Each part is a completely different shape and construction from the others, because they all have a COMPLETELY DIFFERENT job to do.

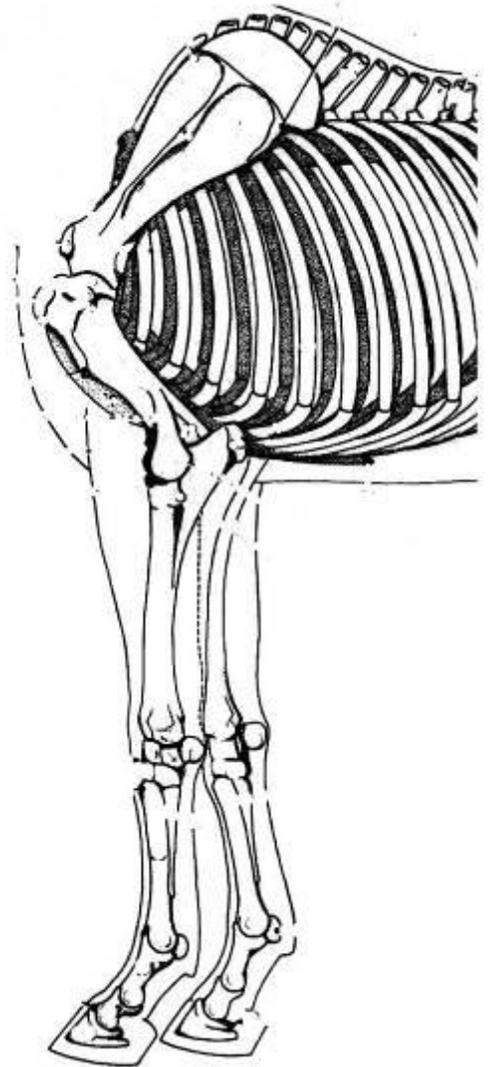
This is very important to understand (for your horse's sake).

BASIC EQUINE CONSTRUCTION

FRONT LEGS ARE CONSTRUCTED TO ACT AS PILLARS – used for:

- **Supporting static weight**

Whenever a horse is standing, dozing or grazing, the front legs (PILLARS) are used to support the majority of his weight. You may have noticed that when your horse is standing he rests his hind legs, one after the other. This is natural behaviour.

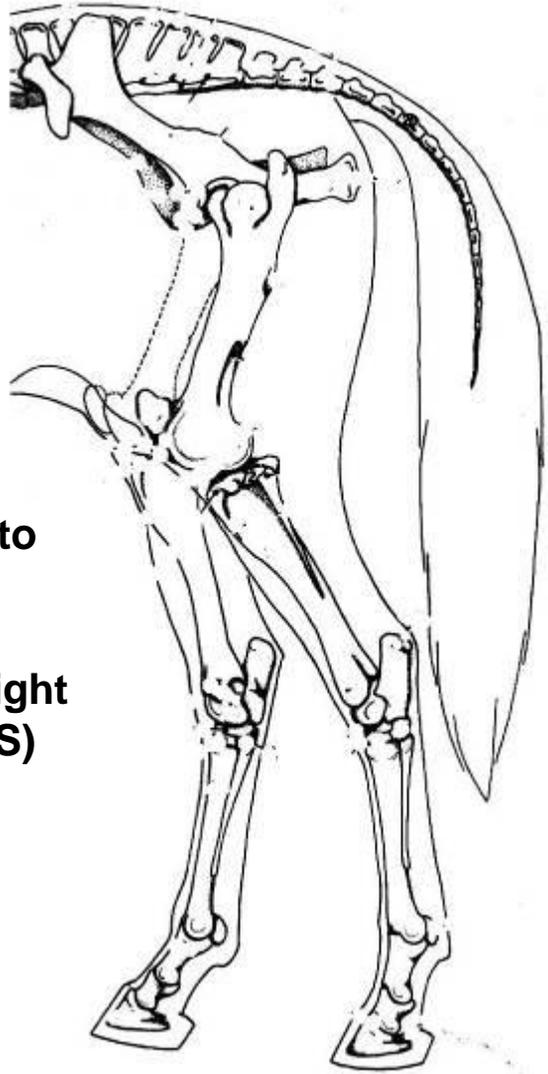


BASIC EQUINE CONSTRUCTION

HINDLEGS ARE CONSTRUCTED TO ACT AS LEVERS – used for:

- Supporting dynamic (moving) weight
- Propelling weight in any desired direction
- Shock absorption
- Achieving maximum results without maximum effort

In natural movement horses need to engage their hind-legs (LEVERS) more underneath the body so that they can offload the excessive weight that is over the front legs (PILLARS) when they are standing still.



Nature created a very clever system.

When the horse is resting, his front legs (PILLARS) can lock and therefore require no muscular effort to keep him upright. The front legs are relatively straight, as you can see, and therefore, cannot offer much of a shock absorbing mechanism. They are not designed to carry a lot of weight during movement without risk of damage

The multiple angles in the hind-legs (LEVERS) do not lock in the same way, and therefore, even at a standstill, there is some muscular activity, which is why the horse alternately rests one hind leg then the other.

In nature, as soon as a horse is stimulated into action his hind-legs step more under his body so that they can support more of his weight as he transfers it from his front legs. Or rather, that is how the structure is meant to function. The angles in the hind-legs are designed very well to carry weight in movement.

Horses are highly adaptable, they have had to be in order to survive in their natural habitat. But this very ability to adapt can work against them when they are asked to cooperate in the human invention that we call riding! As mentioned before, it is their nature to follow the line of least resistance, so if they are subjected to the weight of a rider, which directs their balance both forward and down, they will follow that direction, overloading their fore-limbs. This pattern also rotates the equine pelvis in the wrong direction to facilitate the hind-legs stepping forward, closer to the mass of the body weight. What you have is the equivalent of a rear wheel drive car that has had most of the power taken out of its engine and most of the air taken out of the front tyres!!!

This is the whole point of training the ridden horse. It isn't just about making him jump higher, do dressage movements, or cut cows. Of course this is what most people think about when they use the words 'training the horse', and horses can be trained to do many different things.

However, the fundamental responsibility of every rider is to have the knowledge and skill required to train the horse to recover the unbalancing and therefore, damaging, impact that their own weight has on him.

Unless and until they are trained to recover to an efficient and natural way of using their bodies, horses will follow the line of least resistance. Most appear to accept an unbalanced way of moving and adapt to it. They learn not to fight the feeling of being overloaded at the front and vulnerable. This works for the rider, but absolutely works against the health and soundness of the horse.

The horses that cannot, or will not, accept this unbalanced feel, are often referred to as being 'temperamentally unsuitable', 'difficult', 'un-trainable' etc.

Because they cannot vocalise their discomfort and because it isn't always easy for the owner to see what the problem is, horses try to communicate by behaviour and/or facial expression, which many people refer to as 'an attitude problem'

How, you might ask, does this relate to my saddle?



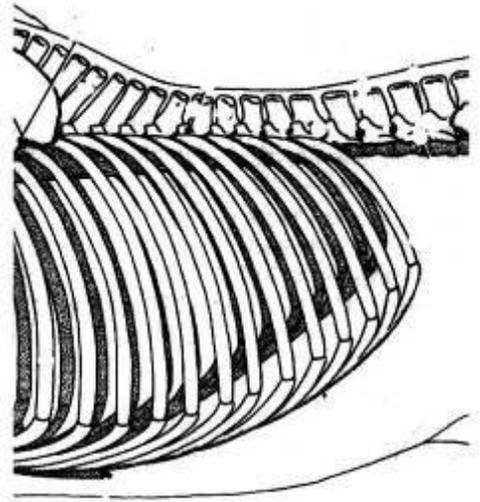
If we commit to training our horses to use their bodies in the way nature had designed them to be used, even when under the influence of the unnatural loading of the rider, we have to make sure that there is no mechanical interference with that aim. The saddle can be a major source of interference if not designed and ‘fitted’ in such a way as supports healthy, equine bio-mechanics.

So read on.....

BASIC EQUINE CONSTRUCTION

MID SECTION IS CONSTRUCTED TO ACT AS A BRIDGE – used for :

- Connecting
- Spanning
- Supporting



In the same way as a bridge, the mid section of the body connects the hind end of the horse to the front end so that the movement created in the hind-legs (LEVERS) can be transmitted forward.

The bridge also has to lift to allow the levers to get in place to do what nature intended.

BASIC EQUINE CONSTRUCTION

The problem is that saddle fitters have traditionally measured across the bridge to assess for a suitable fit.



It sounds good in theory, but our research shows that many different measurements can be taken in the same day as the bridge alters its position. Try it yourself. Using a 24" Flexible Curve (available from BALANCE or an Office Supplies store) measure your horse 2" behind the back of the shoulder blade before you ride. Then ride for 10 minutes and take off your saddle and measure him again. Then lunge him for 10 minutes and measure him again.

Very often the second measurement is narrower than the first because the saddle isn't wide enough, and the third is wider again because the muscles can move without restriction.

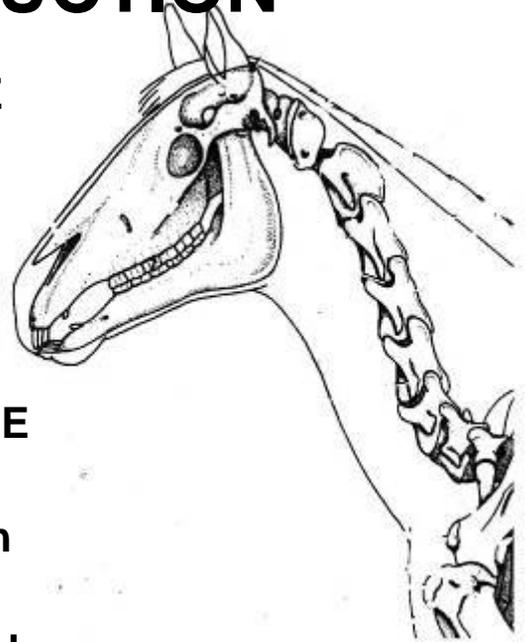
Which measurement will you fit to? BALANCE believes that saddles cannot be chosen to work well for a horse by measuring and matching his static body-shape.

BASIC CONSTRUCTION

FINALLY AS A GRAZING ANIMAL, THE HORSE HAS A HEAVILY BONED HEAD ON THE END OF A LONG NECK.

In movement, the horse uses his head/neck as a COUNTERBALANCE for:

- **Equalising weight distribution both longitudinally and laterally.**
- **He will also use muscles in his neck to assist front leg movement when moving in an unbalanced way.**



The neck and head are used as above to equalise and compensate for the position of the BRIDGE and the LEVERS.

The positioning of the head and neck provides visual feedback about how the horse is using the rest of his body, and where his weight (balance) is directed.

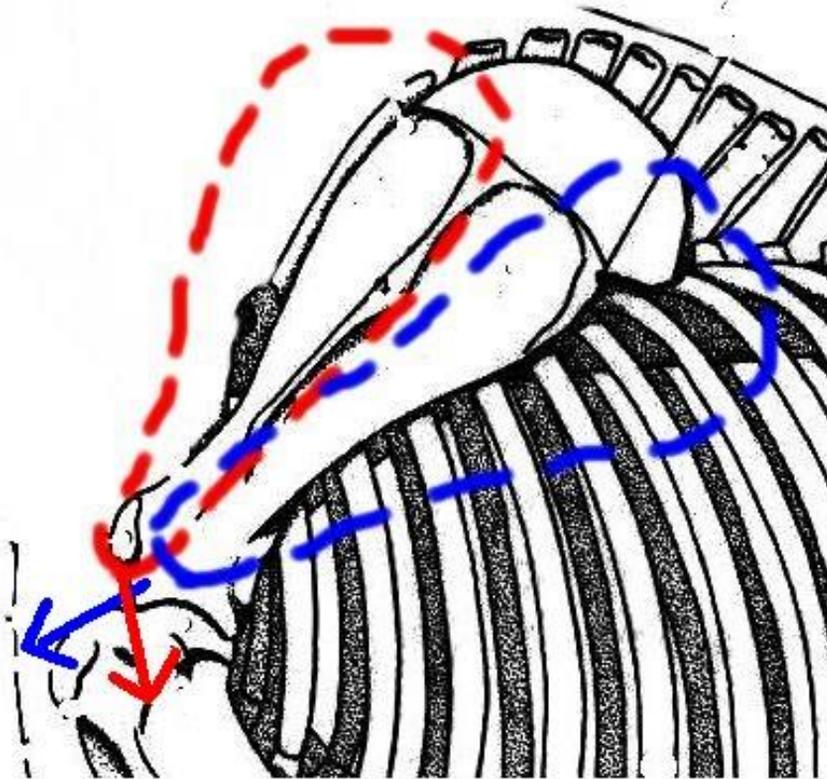
Left to his own devices, an untrained horse will usually extend his neck forward and away from his body when subjected to the rider's weight. This compounds his loss of balance because the heavy head on the end of the neck pulls his balance forward and down. Therefore, in order to help the horse out of this unbalanced state, the rider needs to encourage him to bring his body closer to his head. NB Not the head closer to the body.

The way in which this is done has to be delicate and sympathetic. As the LEVERS of the hindquarters are encouraged and helped to step further under the horse's body and he becomes strong enough to sustain this way of moving, he will naturally draw his own neck closer to his body (bridge) and he will require less and less help from the rider to carry himself in good balance. (This information is covered in depth during 'Straight-Forward-Riding' Workshops and Clinics)

HOW DOES THE SADDLE IMPACT ON THESE IMPORTANT MOVING PARTS?

- Shoulder blades
- Hind leg joints
- Ribcage
- Mid section of the back

SHOULDER BLADES (SCAPULA)



Shoulder blade needs to rotate back and forward as front leg moves forward and back. Does your saddle allow this? It cannot happen if:

The saddle is put on too far forward over shoulder.



The saddle is too tight in back of shoulder.



The saddle is not shaped to accommodate shoulder movement e.g. military saddles, racing saddles, jumping saddles and many western saddles.



HIND LEG JOINTS



Joints of hind leg (LEVERS) close and open as leg moves forward, up, down and back.

RIBCAGE AND MID SECTION swings from side to side and raises and lowers as the hind-legs (LEVERS) move forward and back.



Mid section of body (BRIDGE) lifts and lowers as hind-legs (LEVERS) move forward and back Diagram 1. As the back lifts it also widens. The two pictures at the bottom of the page were taken of the same horse. Photo 1 was in his normal static posture, Photo 2 was taken a few seconds later with his back raised to mimic what happens in movement. Diagram 2 shows the difference in measurement between Photo 1 (red) and Photo 2 (blue). The difference of 2" (5cm) is FIVE saddle widths in some makes of saddles!

Diagram 1

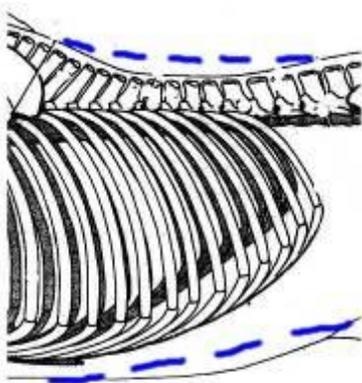


Diagram 2

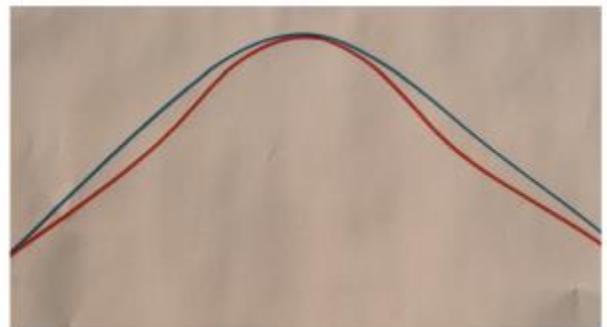


Photo 1



Photo 2



The shape of the front of the saddle needs to accommodate the increased width and moving posture, rather than the static shape.



Inverted U

This is the natural healthy shape of the horse



Inverted V

These saddles are the shape of a muscle wasted horse



THE JUNCTION BOX is the name that **BALANCE** has given to the area where, in conventional saddle fitting practice, horses are measured to assess and choose the tree/saddle width.

This is where the points of the tree rest, in order to support the front of the saddle off the withers. There is a mass of interconnecting muscles in this area, as well as nerves, blood vessels and major acupuncture points.



It may be the most convenient place for the human to get support and stability from the saddle, but it certainly isn't for the horse.

Look at this tree in the photo. It gives plenty of clearance over the wither, but creates 'dents' in the muscle of the Junction Box area. How much deeper will these 'dents' be once a rider's weight is added?



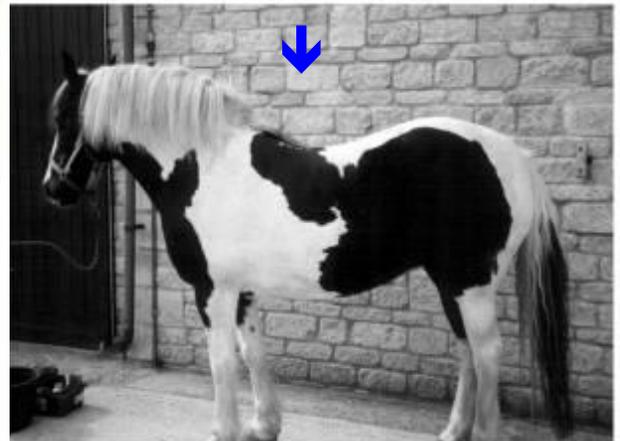
THE TWO MOST COMMON EFFECTS OF PRESSURE IN THE JUNCTION BOX AREA ARE:

1. Shut down of blood supply leading to muscle wastage. Of course no muscle works in isolation, so the restriction gradually transmits from one muscle group to another resulting in the whole horse looking 'poor'.



2. Stimulation of reflex points causing the back to drop (hollow).

Repeated stimulation will result in this posture becoming normal, but it is rarely natural.



It will be no help to any of these horses to measure them for saddle fit in this 'damaged' state.

SO WHAT DOES THE HORSE NEED FROM HIS SADDLE IN ORDER TO BE COMFORTABLE?

DESIGN FEATURES:

Here you can see that both the panel and the flap are cut in such a way as to be relatively straight at the top, before rounding forward.



The shape of the flexible top flap doesn't always have to look like this, but the panel ideally, should.

To be an inverted U shape not V shape when viewed from the front.



To be wide enough to accommodate the healthy, natural shape of the moving horse's body.

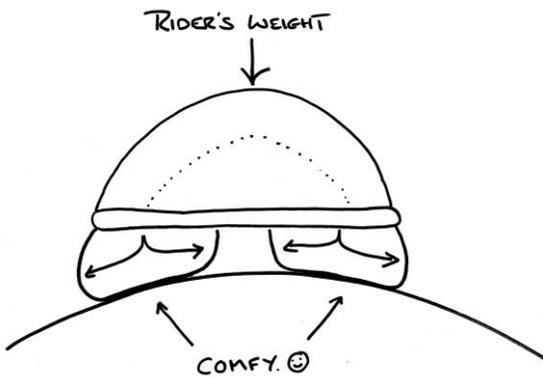
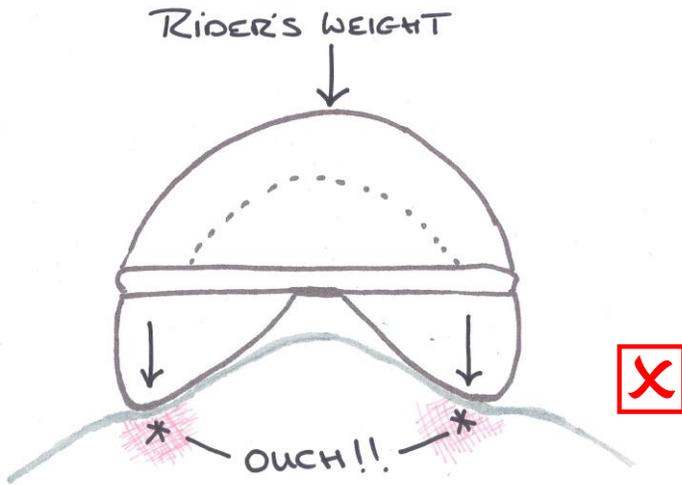
DESIGN FEATURES contd:

To have panels that are flat enough from front to back and side to side to reflect the healthy, natural shape of the moving horse's back.

To have panels that are yielding enough to avoid blocking the movement in the back muscles and to distribute the rider's weight laterally and evenly across the back



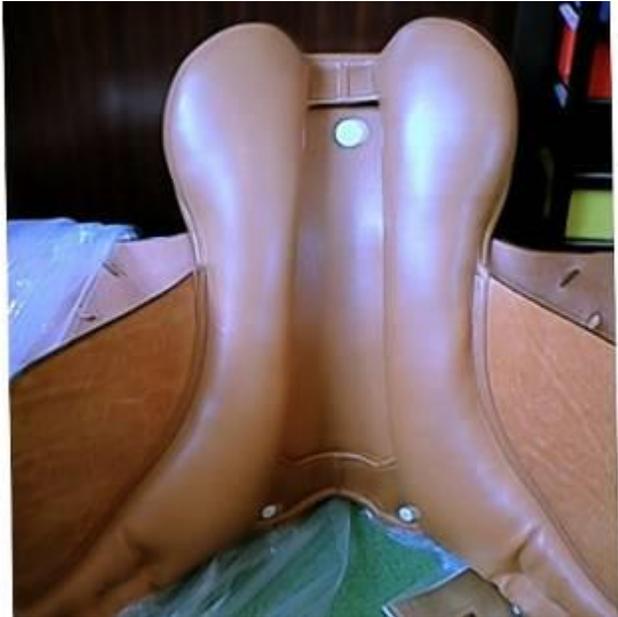
These simple diagrams show the difference between the way a hard panel distributes weight/pressure vs a softer panel.



DESIGN FEATURES contd:



To have a gullet /channel that gives a 'safety zone' either side of the sensitive structures down the middle of the back.



This saddle will bruise the sensitive tissues down the middle of the back. The horse will most likely try to cope by either swinging his quarters out or by fixing himself in a rigid way. Both of these coping strategies are often described as horses resisting working properly. Wouldn't you do the same?

FITTING BELIEFS THAT WILL HELP THE HORSE

1. That the static shape is not a useful guide to determine saddle choice.

2. That the muscle wasted back and/or compromised posture should not have a saddle that matches it.



3. That the saddle is chosen to be wide enough in order to allow some form of cushioning between it and the horse. This will accommodate the repetitive change in shape and posture that occurs in each step. In order to allow for this padding, the saddle has, by default, got to be wider than the horse!



4. That ideally, the saddle is also wide enough to use a padding system that has a little *more* depth at the front than at the back. Thus providing a buffer zone between the areas of greatest potential pressure in the saddle and the vulnerable Junction Box area.

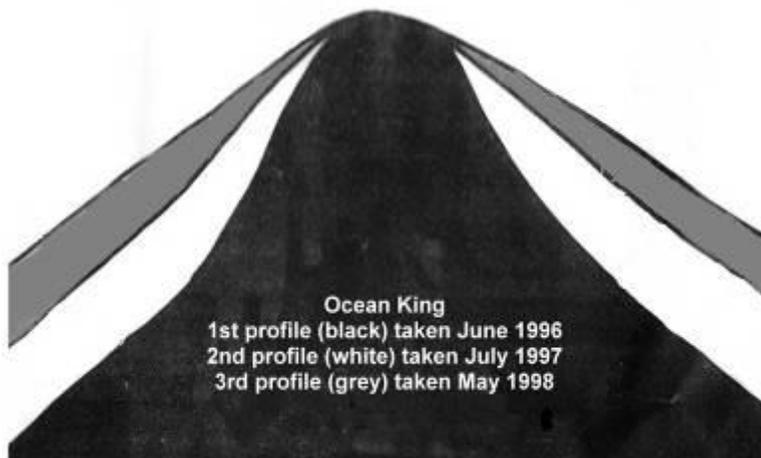


THE IMMEDIATE DIFFERENCE A COMFORTABLE SADDLE CAN MAKE TO BALANCE AND MOVEMENT. No kidding!



THE LONGER TERM DIFFERENCE A SADDLE CAN MAKE TO POSTURE AND SHAPE. A TWO WAY STREET!

Many young, healthy horses start off with a wide profile and get progressively narrower through years of being ridden in saddles that are too tight. The BALANCE Saddling System reverses this damage and enables horses to recover the shape and movement that nature intended them to have.



Zonda aged 11. Theoretically in his prime, but looking weak and underdeveloped.



Zonda aged 21! Theoretically a veteran, but with the benefit of good, supportive riding and the BALANCE Saddling System, he looks better than ever!

The BALANCE organisation is committed to supporting the ridden horse's right to comfort and wellbeing.

The BALANCE Saddling System is the original method of 'Functional Saddling'.

Functional Saddling is based on protecting the efficient function of the horse's body, posture and movement. It is the obvious and highly effective alternative to conventional saddle fitting.

If you are interested in making a Functional Saddling approach available for your horse to try, you are welcome to look at information on the BALANCE website, which is:

www.BALANCEinternational.com

Our Facebook Page is:

[BALANCE Functional Saddling](#)

Our YouTube Channel is:

[Functional & Constructive Saddling](#)

BALANCE the Way forward...
helping people helping horses...