

The Pad or Numnah, design issues.



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All English Tack

A discussion of the fitting of Pads or Numnahs and their design in relation to saddle fit and movement.

Pads are a controversial issue in the fitting of saddles to horses. We all like them as they save us a lot of cleaning of the saddle and they absorb sweat from the horse. They do however completely change the fit and effect of the saddle if they are not of the correct size, shape, and contour. In reality your saddle should fit so that there is no need to have a pad at all, and in the past, pads were only used to compensate for problems on the back.

Today, pads are an industry all of their own with different designs and styles, colours and shapes. However, there has been no research until now on the effect of the pad on the horse it is fitting; whether that effect is due to heat retention, shape of pad, effect of the material on the horse with concern for friction and movement, or purely poor design.

The saddle pad you ride on does not just make a comfortable feel for your horse or keep the base of your saddle clean, it interacts on both surfaces, the one which is against the horse and the one against the saddle. The quality of this interaction is defined by the fit of the pad and the material that pad is made of. In the same way a pair of jeans which are poorly cut, but may be your size doesn't sit well and causes discomfort or rubbing after a while, so a poorly cut pad with bad shape will fit incorrectly and this will cause discomfort and interfere with the fit of your saddle. A pad can cause a saddle to move as there is friction between the horse and the pad and friction between the pad and the saddle, wrinkles occur, the pad may move back or the bottom may rotate and then pull over the wither, also the pad may "hammock" and by this I mean that it hangs "hammock fashion" over the centre of the back with contact only on the front and back of the pad causing pressure points and rubs.

Pads come in two different types:

- 1. Therapeutic:
 - Relief pads, offer solutions to pressure, thin skin, poor muscling and heat retention.
 - Correctional pads, offer a temporary solution to saddle fitting problems by altering the bearing surface of the saddle.
- 2. Comfort:
 - Cushioning pads, which offer cushioning for the horse between the saddle and skin.
 - Absorption pads, that offer absorption of dirt and sweat against the horse.

These last two would be called Numnahs in the UK.

Comfort pads: absorb sweat and provide a comfortable surface for the horse, therapeutic pads alter in some way pressure and the fit of the saddle. Within these groups the material that constitutes each pad is quite different and has different properties, each type of pad and the material it is made with has a specific use and therefore should be purchased with a definite job in mind. Similarly the shape of the pad will determine how well it fits the horse. Each pad should be bought according to the "true drop" of each horse's spine and according to the T18 length and rib expanse, in other words it behoves a rider to have a copy of the true drop tracing when buying a pad and to know at what angle the rib extends from the spinal column, all information that your saddle fitter should provide when checking your saddle.

One of the most common problems with comfort pads is when a horse has soft swellings over the wither or spine after riding and then as soon as the saddle is removed the swellings begin to disappear, another is if you find ruffled hair or rubbed patches after you remove the saddle. The rider immediately associates this with bad saddle fit, and I am not saying that is not the case, however quite often the saddle will be quite okay, but the pad and its shape are completely wrong for the horse. In this case as the saddle follows the horses' movements the shape of the pad is unable to contour to the bottom panel of the saddle, friction surfaces move the pad one way (as its shape does not allow for free movement) and the saddle follows another, wrinkles and pressure points develop giving swellings or rubs. Be careful to ensure the pad is always the correct size not just when new, because if the pad shrinks in the wash or is too short, it will start to rub and cause pressure due to the change in shape.

Therapeutic pads: come in relief and correctional. The relief pad provides an interference surface between the saddle and the horse, this alleviates pressure points by helping to cushion the back, dispersing the pressure or absorbing it depending on the material used, secondly these pads, more the absorption ones, help to alleviate the "thin skin and little hair" problems suffered by Thoroughbreds and Arabs. Thirdly they ameliorate poor muscling and some materials will disperse heat to allow backs to stay cool and not develop heat bumps and related irritations. The correctional pad offers a temporary solution to saddle fit problems by altering the bearing surface of the saddle and returning the balance point to central with a flat and even footprint when bearing the riders weight. Choice of the correct pad for the saddle fitting problem is a complicated one and really should be referred to a professional fitter, as I consistently am told by clients that the front of a saddle is too tight therefore the horse needs a wider saddle please, only to arrive at the appointment to find that the front is too wide thus bearing down at the front (the too tight feel) and the horse really needs a narrower fit or a reflock. Lifting the back of a saddle without the correct knowledge also has the same effect of developing pressure points over the wither.

Design:

The very different shapes of horses' backs mean that the design and purpose of your pad should be well documented. Whilst we have qualified saddle fitters to ensure that the horse is receiving the correct fit of tree and panel to your horses back shape, there is no help or information out there to guide you to the correct pad for the type of horse, the type of saddle, the type of riding, and the time you are in the saddle. Correct pad shape in both comfort and therapeutic pads for your horse means that; horses with high withers need a prominently contoured pad with a wither gusset and deep true drop equal to that of your tracing. Standard or mid shaped horses need a Medium contoured pad with smaller centre gusset, and wide horses with a flat rib emergence need a pad with a wide centre gusset, the width of the spine and shaped with a low profile true drop. These shapes will allow the pad to contour to the panel of the saddle and stay with it while the saddle flexes with the horse. Please note; the more flexible your tree is, the more your pad will move and promote a problem, so buy according to the type of saddle tree you have. Modern tree's offer more feel and flexibility, so pads have to fit better. A pad with no shape to the drop line will never fit any horse.

Materials used: There are many different materials used to manufacture pads, many years ago most pads were of a cotton batting (quilted) or of wool felt, both these materials have stood the test of time with good results, both are natural fibres and both are durable. A natural fibre allows the skin to breathe and has absorption qualities. Wool felt was impractical because if washed it shrank and was too heavy when wet to dry easily. Cotton batting is still a staple of the pad industry in comfort pads. New developments in both foams and gels, and treatments for natural fibres have meant that sheepskin and lambskin has had a resurrection in popularity, and foams and gels developed in the medical world have made therapeutic pads available to alter fit.

- Pad type 1: Quilt batting, is made of cotton with a fibre or foam fill these come in various thicknesses and have a limited cushion effect, it does absorb sweat and depending on the thickness of the foam retain heat.
- Pad type 2: Sheepskins, Natural, made of treated sheepskin intact or with the fleece removed from the skin and incorporated into a cotton backed pad. This type of pad has a good pressure relief effect but is extremely heat holding, even though the manufacturers say that natural fibre is best because the air circulates within the fibre, it is the air pockets in the fibre that make any wool garment or pad extremely warm, the hollow hairs retain the heat and the air pockets warm to hold heat, a sheep's coat was designed to help the animal in very cold climates; they are naturally mountain animals. The fleece removed from the skin is easier to wash and is also less heat retaining.
- Pad type 3: Synthetic sheepskin, usually a polyester orthopedic fleece material. A less expensive sheepskin replacement with a cotton or polyester backing. The positives of this are that the material will be consistent within each fleece and from one to the next, but it is designed like a fleece so holds heat in exactly the same way. Easily washed, but inclined to pile and compact if not washed after each use.
- Pad type 4: Impact foams; manmade material, so unless it specifically says it will wick sweat away then it will not breathe. High pressure absorption with soft feel so will contour through compression to the shape of the back, very useful for those annoying little fly bites that become hard and encapsulated. This is the type of foam found on mattress tops these days, can be extremely hot for horses in hard work over longer periods, and will absorb sweat. Impact foams do condense over time so these will have a limited life span.
- Pad type 5: Standard foams, this is the foam found in furniture. It will absorb sweat and condense, this is used as it is a very economic material and washes well and it can be covered easily with cotton or other fabrics. All foam breaks down over time with sweat and dirt, but this type does degenerate easily. A low level impact absorber. If it is an inexpensive pad it is this material. Great as a way to keep your saddle clean but not much else. Retains heat, the thicker the pad the more retention.
- Pad type 6: Memory foams, these come from the medical field and were designed for wheel chair and bed ridden patients. Developed to breathe and to remove heat, they do not compact, thus the memory part of the name, in general memory foam products are used in therapeutic pads to offer relief in the back or to adjust fit of the saddle in some way. These products are chosen as they compress and return to shape, so shims for adjustment are made from this.

Memory foam comes in two types; that which disperses impact and pressure by spreading it along the surface of the foam, in other words you can bounce something off it and it will send the impact side wards. These types are dense and have a hard solid surface, then there is the absorption type which when you bounce something off it deadens the bounce so absorbs it into the material. Both types have a place and the action of the material should be taken into account when buying a pad. Dispersion foams will take impact well and absorption foams will alter surfaces well.

- Pad type 7: Wool felt, this is an expensive and difficult to maintain surface, but is extremely consistent and will last for many tens of years, is easy to sculpt to a difficult shape and can be combined with foams or other materials to product a hard wearing pad.
- Pad type 8: Gels, usually used in a relief or adjustment pad, this range of products is very heat retaining if no breathing holes are included, gel is heavy but the newer types do provide extremely good pressure relief. They have the added advantage of being sticky which helps hold the saddle and reduce friction however that also means that the surface can collect dirt as well so they need to be washed frequently.
- Pad type 9: Air bladders, these pads have adjustment features that allow the (usually saddle fitter) to adjust the pad to different amounts to conform to an uneven back, the bladders are inflated to level the saddle and conform to the back. The advantage to this is that you can have the adjustment done for horses with severe shoulder or hip differences and make them comfortable to ride, the disadvantage is as with all air saddle types the bags need frequent maintenance and adjustment, making them an expensive piece of equipment as the rider cannot do this, a trained person has to do the adjustments. Air can be very bouncy to ride on and does react to temperature.
- Pad type 10: Air pockets, this is another expensive material made into a shaped pad with quite stiff feel. It is manmade in a honeycomb design of air pockets, due to this it is cool to use, the shape does not flex much but the cells do cushion and relieve back problems. Maintenance is easy as it wipes down and there is no absorption of sweat, so the pad would need a thin cotton quilt with it to cover this problem otherwise the pad gets damp and slippery.

The beginnings of research has been done into the best types of pad to be used and the first results of pressure testing done with the Pliance mat testing system is available. The results are included below with a description of the pad.

Research Into Pressure Differences Found When Using Different Pad (Numnah) Shapes and Pad (Numnah) Materials

Part I: Pad descriptions.

Theory: To determine which pad (numnah) shape and which materials offered the best pressure results when used under a well fitting saddle.

Equipment used and Conditions at Time of Research:

-The research was conducted on a prepared, level surface, the arena had stonedust footing to provide consistent traction. The same track and directions were used for all tests.

-The same horse was used throughout:

A 6 yr old Paint x TB Mare, 16hh, with rounder medium plus build.

-The same rider was used throughout:

Amber Markley- 30 yrs old, female rider, 140lbs, 5'6" tall, Riding at Prelim Eventing and 2nd level Dressage.

-The ambient temperature for the day was 65 degrees with a light breeze and sunny. Conditions for testing were ideal.

-Rider used the same wool flocked close contact style jump saddle throughout the testing.

-The testing took 4 hours.

Testing Situations:

Baseline Test Info:

-Horse tested with Pliance pressure pad on back with saddle in place, no rider, no pad, stationary.

-Result: Static fit for saddle

-Horse tested as above but with rider mounted and horse walked on both reins and then stationary.

-Result: Static and mobile fit for saddle with rider mounted,

Testing Info:

Pad #1: Lambskin half pad with dense fleece. Some contour but only 1 1/2" from horizontal.

-Results: **36.7 % reduction in maximum average peak pressures.**

-Observations: Horse swished tail, saddle fit looked cantle high. Horse not forward.

-Rider Comments: Front of horse felt shut down, weight back more. Upper body forward. Rider felt there was restriction in hip flexibility for her.

Pad #2: Lambskin half pad on full pad. This pad had larger contours and a much softer less dense pile.

-Results: **40.0% reduction in maximum average peak pressures.**

-Observations: No tail swish. Horse moved more freely.

-Rider Comments: Shoulder freer and moved better, horse felt softer. Rider level.

Pad #3: Thick pad with small contour made of memory foam, with no foam across the spinal channel. This pad was very soft to touch.

-Results: **36.7% reduction in maximum average peak pressures.**

-Observations: Saddle rolls with this pad. Fit looked cantle high.

-Rider Comments: Too far off horse for good feel. Lot of pressure through the front of twist from saddle. Gives hard feel.

Pad #4: Hi Wither Contour Pad-made of quilted cotton padding. Fall down staple attachment and Velcro lower girth slot

-Results: **25.0% reduction in maximum average peak pressures.**

-Observations: Horse seems uncomfortable. Pad stable did not move.

-Rider Comments: Good feel and central.

Pad #5: Contour cotton quilted pad with girth strap tabs and girth slot.

-Results: **31.7% reduction in maximum average peak pressures.**

-Observations: Pad slid against wither. Bottom girth slots not in correct place to stabilize pad.

-Rider Comments: Horse feels less free. Tight feel through seat.

Pad #6: Combination of foam with synthetic breathable cover and gel points at front and back.

-Results: **10.0% increase in maximum average peak pressures.**

-Observations: Seemed stable on horse, but hard to place correctly. Horse was swishing tail.

-Rider Comments: Horse feels as though she is ventriflexing away from pressure. Rider feels perched. Horse pushing left.

Pad #7: Dense absorption foam with closed cell surface. Thick. No padding over spine area. Small contour- 1 1/2"

-Results: **33.3% reduction in maximum average peak pressures.**

-Observations: Pad seems a bit small even for this smaller jump saddle. Horse went well, very happy.

-Rider Comments: Felt above horse but very good feel and level.

Pad #8: Dense absorption foam with closed cell surface. Thinner. No padding over spine area, more contour.

-Results: **18.3% reduction in maximum average peak pressures.**

-Observations: Horse comfortable. Stretched well and walked forward.

-Rider Comments: Closer to horse, level, soft under seat. Good feel.

Pad #9: Non slip, no contour closed cell foam, with breathing holes punched.

-Results: **23.3% reduction in maximum average peak pressures.**

-Observations: A little hard to center, seemed fine.

-Rider Comments: Tight under seat. Horse feels shorter in stride, especially through shoulder. No stretch or back lift.

Pad #10: No Contour 1/2 pad, dispersion foam.

-Results: **20.0% reduction in maximum average peak pressures.**

-Observations: Difficult to center

-Rider Comments: Horse's back still felt tight. No stretch developed. Rider's seat bones felt pressure.

Pad #11: Gel Pad with breathable holes. Soft, stretchy type of gel, no contour.

-Results: **35.0% reduction in maximum average peak pressures.**

-Observation: Very tacky, so would stay in place, but this makes it also not very easy to place. Washable.

-Rider Comments: Very nice, soft feel through seat bones. Horse stretching well. Front steps felt shorter.

Pad #12: Relief pad with balanced adjustable pads. Made of dense absorption foam with closed cell surface. No foam across spinal channel.

-Results: **11.7% reduction in maximum average peak pressures.**

-Observations: Horse comfortable. Easy to fit. Balanced.

-Rider Comments: Feels soft to ride on. Horse going well.