

ADVANCED SADDLE FIT



Where Fit Comes First

Saddle Fitting for Smarties



Horse Shape, Saddle Fit, and Saddle Trees

Sorting the Puzzle

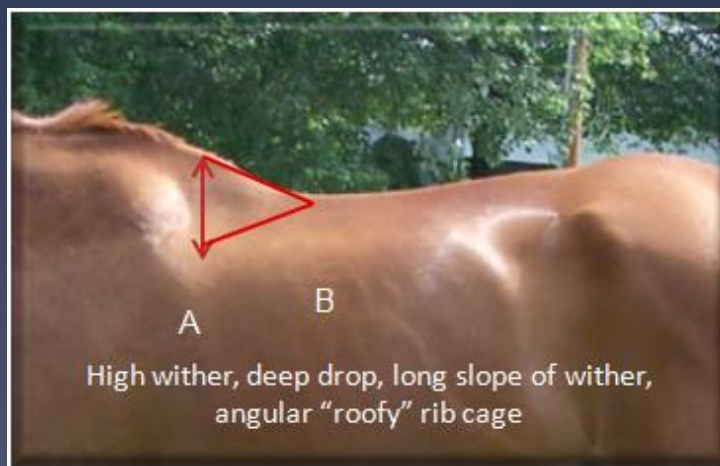
Fitting a saddle to your horse is like solving a puzzle in three dimensions, with movement thrown in for a bit of extra challenge. The conventional rules of saddle fitting can help spotlight *problems* with fit, but their practical use in identifying *solutions* is quite limited. Understanding what good fit means requires a bit more understanding of the design technology of saddles.



As in solving every other type of puzzle, the crux of the matter is pattern recognition.

Basics: The horse's bearing structure

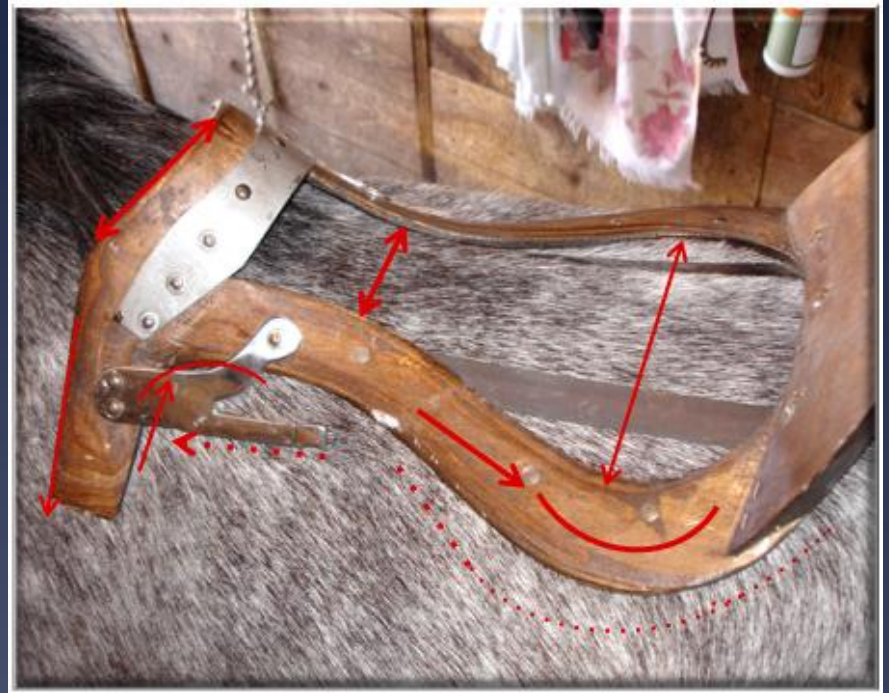
- The prime objective in fitting a saddle is to get a good match in shape between the bearing structure of the saddle – which is the tree -- and the bearing structure of the horse.
- The horse's rib cage is the structure that enables him to bear the weight of the saddle and rider. The shape and dimensions of the rib cage – and how far it lies below the top of the wither -- are very important factors in saddle fit.
- In assessing the shape of your horse's bearing structure, consider the vertical height of the wither at A. How deep is the drop from top of wither to top edge of rib cage? Note also the length of the withers' slope before the back goes wide at the base of the withers (B). Consider the width and shape of the horse's rib cage. These landmarks will all be important in understanding what type of tree and panel will be a good match for the bearing structure of your horse.



It is vital to understand the shape of the tree inside the saddle and how closely it matches the bearing structure of your horse. There are wood spring trees in many different shapes available in British-made saddles. Ask probing questions about the shape and fit considerations of the tree in any saddle you intend to buy.

Basics: The saddle's bearing structure

- For the rider's weight to be borne evenly without pressure points, the entire tree must be a good match in both width and shape for the horse's back.
- Conventional wisdom, embodied in the "rules of saddle fitting," places great emphasis on the width and angle of the tree points.
- Reliance on any single dimension of fit oversimplifies the geometry of tree shape and often results in a poor outcome.
- Relying solely on what is visible on the outside of a saddle – for example, the depth, shape, or fill of the panels – can sometimes be grossly misleading.
- Different sorts of horses require very different tree shapes, not merely the same tree shape in different widths.
- Generally speaking, the importance of variety in tree shapes is a commercially inconvenient truth that receives scant acknowledgement or recognition.



The tree is the bearing structure of the saddle. For optimal weight distribution, the whole shape must be suitable for the shape of the horse.

Tree shape and profile

Profile -- essentially the curvature of a tree -- is an important aspect of a tree's overall shape. Here again, it is important to match the shape and profile of the tree inside the saddle to the shape and back profile of the horse the saddle is intended for.



- Whether an adjustable or adaptable tree can be altered in all dimensions to fit the vast array of shapes that horses come in invites prudent skepticism, as would claims that a shoe can be built on an adaptable last to suit every size and shape of foot.
- It may prove more realistic, and ultimately more satisfactory, to choose a conventional saddle built on a tree that is a suitable shape for your horse's body type.

There are no guarantees of anything with horses, but as with our own shoes, the better the saddle fits the horse from the outset, the better the chances that it will be able to tolerate some physical changes in the horse over time.

Understanding the geometry of trees and the physics of motion is crucial in solving the puzzle of saddle fit

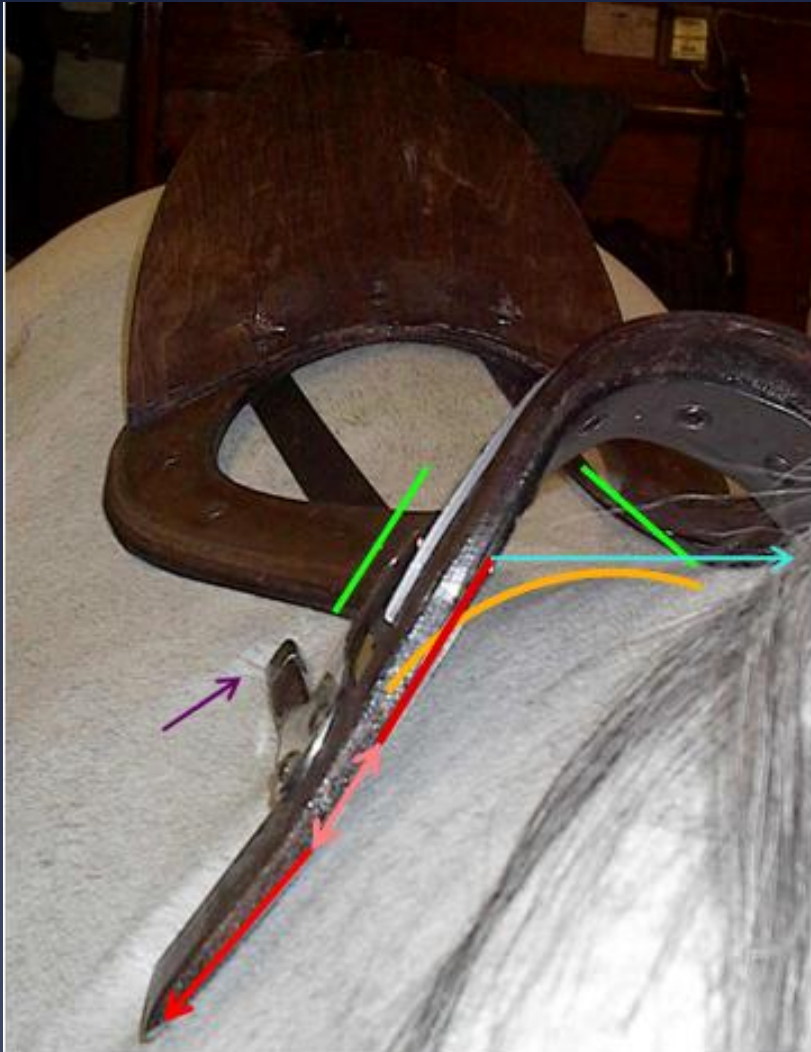
- The key to good fit is understanding the match between the geometry of the tree, the shape of the horse's bearing structure, and the basic physics of the back in motion.
- Though glossed over by the conventional "seven rules of saddle fitting," it is vitally important that the tree fit well at its neck, where the bars run parallel to the wood rails.
- A mismatch between horse and tree at the base of the withers may create a range of serious problems for the horse in motion.
- The cushion the panel provides between tree and horse is relatively thin at the base of the withers. Bars and rails that lie at the wrong angle for a particular horse can bruise muscle and inflame connective tissue around the horse's spine.
- The effects of a stricture here often get worse when the horse tries to engage his back correctly.
- In consequence, the horse may be reluctant to use his back properly; he may rush or bolt in anticipation of pain, or show resistance in other ways that manifest discomfort. Worse, he may just quietly suffer.

This tree was made on a mold similar in shape to this horse's back. A good match between tree and horse is the key to even weight distribution.



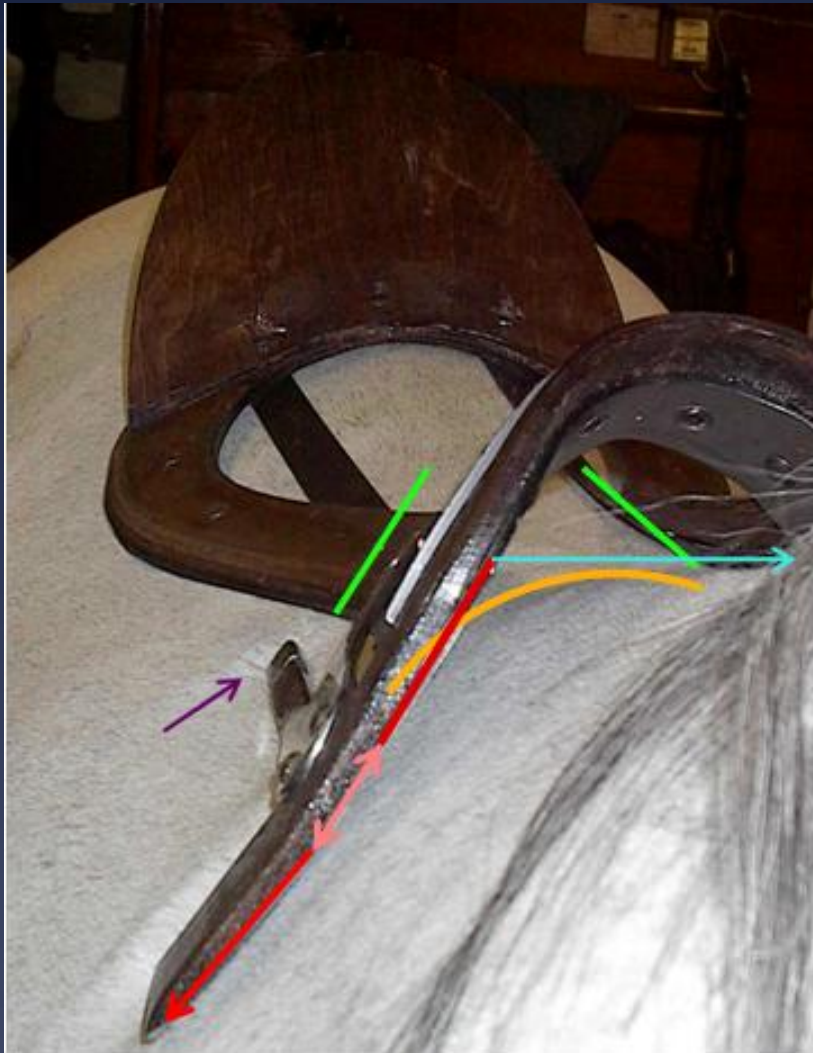
A mismatch in angles at the neck of the tree can create a great deal of excessive pressure under the rails and bars. This could create a fulcrum and lever effect, causing the saddle to rock or pivot at the neck of the tree. The stricture is often most severe when the horse engages the abdominal muscles that allow him to work "through" over the back. In effect, the horse self-punishes when trying to use his back correctly.

Trees are geometrically complex



- While the points of the tree appear to lie parallel to the body, closer examination of this tree reveals that the angles in the head of this tree are not ideal for this horse. For example, the way the stirrup bar is set onto the tree causes it to slant inward toward the horse's body (purple arrow), which is a common cause of severe pressure points.
- Above the stirrup bar, the wood rails of the tree are too vertical (shown in green) for this back, which is broad and flat at the base of the withers. This is an extremely common tree problem – especially for the many horses who are relatively wider at the base of the withers than under the tree points. This common problem in the angle of the rails at the waist or neck of the tree can be difficult to discern once the tree is inside a saddle.
- Many underlying problems with saddle fit arise from a mismatch between body shape and tree angles at this critical juncture. Many trees in wide use have far more severely vertical angles than this tree, perhaps because rider feel often trumps horse fit in the commercial world of saddle design and manufacture. Ironically this is also where the cushioning that the panel provides between the tree and the horse is thinnest, and where the kinetic impact of the rider on the horse is greatest – under the stirrup bars.

Trees are geometrically complex



➤ This picture shows why simply forcing the tree points wider in a tree press will not adequately address other fit deficiencies in this tree. “Widening” in a tree press will not ease out the diameter across the fore arch (aqua line) where more width is needed to conform to the horse’s shape, nor will it solve the problem this horse would have with the angles on the stirrup bars or the rails. Forcing the points wider could also have the unintended consequence of introducing greater curvature to the rails of the tree, causing the rear half of the tree to begin curving upwards. This is the opposite effect to what this flat-backed horse needs.

➤ Small variations in shape and angles can make all the difference between a tree that has good fit tolerance for many horses within a body type and a tree like this one that is somewhat less versatile to fit. This tree, which is specifically for broad backed horses, fits some horses well, but the rather unforgiving steepness of the angles on the rails and stirrup bars makes it less tolerant than it might be. There are other trees in the broad-back class that we prefer for a more forgiving and versatile fit.

More about the importance of tree shape

Problems often arise when a high-profile, sport horse tree with a narrow twist is used on a broad-backed horse. The distance between the points may technically be wide enough, but if the fore arch of the saddle is too steep, and the neck of the tree is too vertical and narrow for the breadth of the back, the saddle will not conform to the horse's shape along its entire length. It may not sit in correct balance, and therefore cannot distribute the rider's weight evenly.

Some riders have a strong preference for a saddle with particular rider features, often related to the shape or width of the twist. If a rider is certain that she requires a particular type of saddle for her comfort or security, she should carefully and honestly assess whether the horse she rides is a suitable physical match for this type of saddle. Never forget that horses were not intended by nature to carry saddles and riders, so even custom-made saddles run up against limits in design technology. It is vital to understand this in order to make the right choice of saddle for both of you.

More about the importance of tree shape

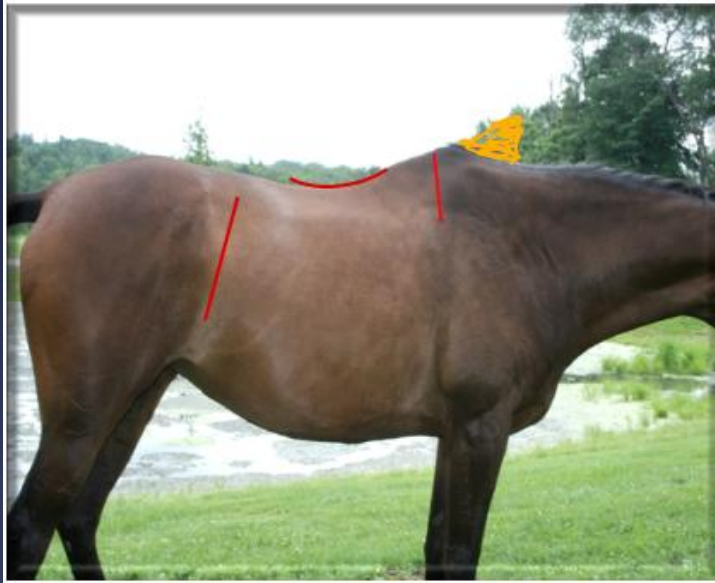
The saddle on this broad-backed horse hints that there may be trade-offs inherent in trees that are marketed as adjustable or “adaptable” to any horse. This saddle, which was custom-made for this horse, is sitting cante-low, but stuffing up the rear panels, inserting a rear riser to level the balance, or manufacturing the saddle with a deeper rear gusset may not be an optimal solution. Often the issue lies in a mismatch in shapes that lie well below the surface and are not readily visible.



The root problem may be that the tree, while sufficiently wide between the points, is too steep and high in the fore arch for a broader, flatter back. In this case, the tree may perch on narrow, vertical edges at the waist of the tree (see note) rather than conforming to the horse's body in both width *and* shape.

Note: Unlike laminated wood-spring trees, synthetic trees do not have rails on the left and right with a vacant area in between. Most synthetic trees are injection molded, which means that they are produced in one solid piece that sits atop the back.

Different shapes have different needs



- The defining characteristic of this back type, often seen in blood horses, relates to the long drop from the top of wither to the top edge of the rib cage, as well as the extended slope of the withers, curvy back, and the angular, roof-like shape of the horse's bearing structure.
- For this sort of sport horse, the tissue at the base of the withers can easily be crushed by a tree that is tightly wedged around the spine, even if there is daylight along the entire length of the gullet.
- Horses like this often benefit greatly from the use of shock absorbent padding to support the tree around the hollow contours of the back. This helps protect the leaner top line from repetitive concussion.

It is time to dispense with the discredited notion that a well-fitting saddle should never need a corrective pad. For some horses, an anti-concussive pad (generally made from the type of material that is used to cushion running shoes) can help protect the horse's back, just as human runners with high arches benefit from a shock-absorbent orthotic to provide structural support and cushioning for their feet. This high-withered Thoroughbred event horse deserves more than a few ounces of wool or an inch of hard foam to absorb the impact of a rider whose kinetic weight will drive the tree down into the trapezius muscles above the level of the rib cage.

At the other end of the shape spectrum...



- Many native breeds, Icelandics, Fjords, and Haflingers, as well as cobs, ponies, some Quarter Horses, some drafts, and some Arabs have low “mutton” withers and a round rib cage with a broad, flat arch. Be aware that you may have to excavate a bit with your finger tips to find the scapula on some full-bodied horses. Precision measuring may be elusive; don’t worry about it.
- These wide, thick backs generally require a tree that is purpose-built for broad-backed horses. Some of the tree types that have been developed for these broad backs are called “Highland and Cob” (H&C) type trees.

If you have a horse like this, you may spare yourself and your horse a world of hurt by seeking out a saddle that is built on an H&C type tree or another tree of similar shape that is purpose-built for the broad-backed horse. A number saddles are purpose-built on trees well-suited to wide, flat backs. These are not like conventional “sport horse” tree shapes that come in extra wide widths. Sport horse trees are made from molds of a different shape and they rarely serve broad backed horses well, even if they are offered in extra-wide widths.

Fooling Mother Nature

- The analogy between saddles and the shoes we wear is useful, but fitting saddles to horses is more complex than fitting shoes to human athletes for several reasons.
- Feet are well adapted by evolution for locomotion, so well-fitting shoes enhance a dynamic, weight-bearing function that is natural to humans.
- Horses did not evolve to carry the weight of a rider on their backs; this is not a natural function for them.
- Shoes need fit only the person who is wearing them, but a saddle has to suit both horse and rider. It can be tempting for riders to reverse the order of priority and put performance enhancement for themselves above fit considerations for the horse. Please don't.
- Horses and riders are ergonomically disparate species, and only the rider can write a check. Product development and marketing in saddles is laser-focused on whatever will convince riders to write those checks, and most people are far more receptive to marketing spin than Mother Nature.
- Riders owe it to their horses to learn as much as possible about the design technology of saddles in order to peel away the layers of marketing hype and delve into the fit considerations of any saddle they plan to put on their horse.

The baseline for proper saddle fit should always be the fit that works best for the horse. Almost without exception, a rider with the right attitude will readily adapt and learn to love a good saddle that fits the horse well. If you're accustomed to saddles designed around rider feel, your brain may need time to help your body adapt to a "new normal" feel in the saddle. Be patient; your neurons will develop new patterns of body memory. In the meantime, you can enjoy the psychic benefits of knowing you have done your best as a steward of your horse's welfare. This is what it means to be a true horseman.

About the Author

I'm Colleen Meyer, co-founder of Advanced Saddle Fit. As a member of Britain's Society of Master Saddlers, qualified in the UK as a professional saddle fitter, it is a privilege to work closely year after year with a number of the world's best saddle makers, saddle fitters, and tree makers. To them I am continually indebted for whatever insight I may have acquired into this black art.

Between us, my husband, my children and I have three Thoroughbred event horses, a Hanoverian sport pony, four Jack Russell terriers, and two Maine Coon cats on the family farm, Windrows, in Marlborough, New Hampshire. I travel overseas frequently to continue my own education in saddle fitting and design, and travel throughout North America to fit saddles and conduct seminars on topics in saddle fitting and saddle design.

Previously I was a career Foreign Service Officer and served in five U.S. embassies around the world over two decades, and in the State Department's Economic Bureau. I graduated from Dartmouth College with a major in economics, and hold a master's degree in international economic development from the Johns Hopkins School of Advanced International Studies.

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