

A “club footed” horse is defined by most people as a horse with one hoof that grows more upright than the one on the other side. Normally we’re talking about the front pair of hooves. Most farriers have treated it as a hoof problem and worked to make the pair of hooves match each other, but it is my opinion that this is a backwards way of looking at the problem.

When a problem above the hoof limits the range of motion of the foreleg, the hoof responds by becoming more upright. This is the horse’s attempt to find some measure of balance in an unbalanced situation. This does not take all of the responsibility from the farrier. If left unchecked, this pattern will become more severe over time. Each hoof needs to be treated as an individual and trimmed for uniform sole thickness and to grow out any wall flaring. Meanwhile, we should try to identify and heal the true problem while understanding that the deformation of the hoof is only a symptom of that true problem.

I’ll lay out some of the problems that can lead a horse’s hoof to become pathologically upright, and some treatment options. In every case, the best a farrier can do from a trimming standpoint is support healing by trusting what the horse is trying to do and maintaining heel height at the live sole plane on each individual hoof and allowing the sole to build under the tip of P3 to normal thickness.

Suprascapular Nerve Damage

From my observations in the field, this is the most common. Square up the horse while someone holds the mane out of the way so that the withers and the shoulders can be viewed from behind. You may have to stand on a bucket or something to get this view. If the shoulder on the side of the club foot falls away from the withers more steeply or is smaller, nerve damage is probably your culprit.

There are two muscles that run along the outside of the scapula (supraspinatus and infraspinatus). Their primary job is actually that of a ligament; to hold the scapula against the body. The reason they are muscle, rather than ligament is for increased flexibility. These muscles are innervated by a motor nerve (suprascapular). If this nerve is damaged the muscles cannot contract as well.

The nerve is usually damaged during a one time event. The foreleg is extended and under power, and suddenly loses traction and slips backward. When this happens, the lack of nerve stimuli allows the muscle to contract and become a more tendonous type of material. Fortunately, the shrinkage of the muscles and their replacement by connective tissue forms “functional” ligaments (Dr. James R. Rooney) which continue to do the job of holding the scapula in place, but with a limited range of motion.

In severe cases, this is commonly called “sweeny”, but I see it very commonly to very slight degrees. The hoof adapts to the reduced extension of the foreleg by becoming more upright. Most people only

notice the horse’s resistance to turn in that direction, pick up that lead or perhaps that their saddle is always shifting to that side.

From a medical standpoint, the nerve damage is irreversible, but I have seen massage therapy and daily stretching significantly help the situation. Anything that increases mobility of the limb (massage, stretching, exercise) will in turn “normalize” the hoof. I have heard one veterinarian and one massage therapist who use electric therapy to stimulate muscles claim they can cause nerves to “jump” into the muscles, reversing the problem. I have yet to see it with my own eyes, though, so if anyone out there has documentation of this, I would love to see it.

Tendon Contracture

Tendon contracture is a misnomer. Tendons do not contract beyond their rest length. The muscles that work the flexor tendons can and do contract for many reasons. An overfed foal can “outgrow” the muscles and tendons. A stall bound horse can have simple muscle contraction due to a lack of movement. Any injury that causes reduced use or movement of a limb can result in muscle contraction. The list goes on. Either way, if this is suspected, a competent vet and farrier need to have their heads together and be on the job. Again, exercise, routine stretching and massage therapy may be the best cure and routine hoof care throughout the horse’s life and plenty of exercise are the best preventatives.

Voluntary Pain Contracture

Very often, pathologically upright hooves are caused by a horse moving to avoid pain. The result of this will often be **increased** musculature on the “club” side. Any of the problems in the back of the foot discussed in my “Navicular” article (www.hoofrehab.com) or many other injuries, advanced thrush or improper trimming can cause a horse to continually land toe first on one or more hooves. The heels react by “reaching” for the ground and becoming more upright. Again, identify the real problem and work to correct it while simply trusting the live sole plane on each individual hoof while trimming. The heels will almost lower themselves as you fix the real problem.

Pastern Injury

Another thing to check for is pastern joint mobility. If a joint is “over flexed” (a horse stepping in a hole, etc.) the articular cartilages that surround the bones can be damaged. As the body attempts to repair this damage, new bone can form and the result over time is a “seized” or partially seized joint. Again, this limited range of motion can cause the hoof to adapt to a steeper form that supports the horse as well as possible. Hacking down the heels in this case can only add pain and more damage.

This one is probably the worst news on the list. Consult a vet to see

if anything can be done for the horse. More that likely, the horse's working days are over, although pasture soundness and light work may still be an option for the horse.

Heredity

Some horses are just born with upright conformation. The best thing to do is not to breed them and create more. A horse with an upright conformation on one or more hooves can live over 40 years without having a lame day, but this is unlikely. A pathologically upright limb is more susceptible to almost every locomotion problem you have ever heard of. None of the shock absorbing features of the horse work as well, and none of the mechanics of the hoof itself are set up correctly. Is a horse going to die from an upright conformation? No; But arthritis, founder, navicular, problems, the list goes on, will always be more likely to occur down the road.

I should point out, though, that genetically upright horses are not as common as most people think. The tradition of thinking it's okay to neglect foal hooves is very often the true culprit. The foal can quickly develop high heels, particularly if it lives in soft terrain, and if left unchecked, the joints, ligaments and tendons will form this way permanently. Hooves should be routinely maintained by a competent professional from the very beginning. It will pay big dividends down the road.

The same goes for the development of club feet in foals often blamed on grazing stance. A foal will often get in the habit of grazing with a particular limb forward, while the other one is held back. This causes the hoof that is most commonly in the "back" position to become more upright, while the hoof that is usually in the forward position tries to "run away" and flare forward at a lower angle. Again, just because a horse tries to develop this hoof pattern does not mean we have to allow it to permanently effect the hooves and limbs.

Routine, balanced trimming will keep the hooves and the whole horse in balance.

Rider Imbalance

Many riders tend to load one stirrup more than the other. This can cause imbalanced movement in the horse, which can cause one foot to grow steeper than the other. If a horse is turned out 24/7 and gets ridden a few hours a month, this will have little or no effect on the feet. If, however, most of the horse's exercise happens under saddle, the effects on the feet can be very dramatic. Since most people are right handed, this type of problem is most common on the front right foot, with secondary problems on the left hind diagonal.

To fix this one, you simply need to train yourself. You should immediately suspect this if you have more than one horse with the same problem.

Remember the scapula must travel back underneath the saddle for the horse to extend the leg forward. Something as simple as a loose nail in a saddle or a saddle that is so tight it restricts this movement can cause these problems.

Tack up your horse and slide your hand between the shoulder and the saddle pad. Have someone lead your horse forward as you walk along beside it. If the shoulder blade causes pain or hard pressure to your hand, you can bet it bothers your horse as well. Imagine a full day of that pressure.

Trimming Mistakes

Sometimes, for various reasons, people just think its okay to raise the heels on a horse. Don't second guess the live sole. It is a window to the inner structures and will show you the heel height the individual horse needs at a given time. If someone has been simply leaving the heels too high, the sole will show you exactly what the horse needs. Simply exfoliate any dead sole and lower the heels until they are 1/16 inch longer than the live sole. (Please read "Heel Height: The deciding factor at www.hoofrehab.com for exceptions to this)

We all have differences in our trimming from one side to the other. We use the same hand to trim, all the way around the horse. These differences can cause changes in the movement; thus the growth patterns of the hoof. A trimmer that habitually leaves the front left heels 1/16 inch longer than the front right, or is a little better at addressing flare on one side, or always starts with the same foot and is tired by the time they get to the last foot, can create major differences between the feet over time. Pay close attention to patterns that show up on several horses in your care.

Overtrimming the live sole causes high heels as well. If a farrier or trimmer has been lowering the heels so far that live sole is cut, the body will respond by quickly growing the proper sole thickness back (and then some) to compensate for the wound the body perceives. The thinning of the sole also causes the lateral cartilages and thus the sole's corium to move downward as well, effectively raising the heels from the inside. The "flip-side" of this is that if the live sole is left alone to callous, it will push the structures beneath upward, lowering the heel to the height that is right for the individual hoof and also concaving the sole and thus straightening the bars.

Most farriers exasperate the problem by trying to match the feet by allowing the club foot to flare. Most of the imbalances we have discussed will usually only cause a two or three degree difference between the pair of hooves. People tend to allow or even encourage the club foot to flare so that the overall hoof angle matches the "good side". It looks better that way to most farriers and owners.

When you bring breakover forward (relative to P3) it generally shortens stride. A shorter stride causes a hoof to grow more upright. The farrier then lets the hoof flare even more..... The vicious cycle continues. Eventually, P3 and the upper band of new hoof growth are almost vertical, when all the horse wanted was a few degrees difference between the feet.

Now I've seen otherwise very competent trimmers who are horrified to try to grow out flare on a foot this steep. "The new hoof would be vertical!" The truth is, as you start to grow out the toe flare, breakover is moved back; lengthening stride. The hoof responds by becoming

less upright. By the time you get the flare grown out, often the feet look almost perfectly matched. I have dozens of clients who think I fixed their club foot, when all I did was allow the feet to have the two degree difference they “wanted” to begin with.



This six year old horse was diagnosed with permanent suprascapular nerve damage and shoulder atrophy. She had a very difficult time turning to the left and would not move on a left lead; under saddle or at liberty. She was very short-strided on the left and the foot adapted to a steeper angle to compensate. The foot was being allowed to flare to make the wall angles match. This brought breakover forward and shortened stride even more, resulting in even steeper growth and a lame horse that was seldom rideable.... Snowball effect.

Studying her upper growth angle at the setup trim, you might think that if you grew out the flare, the new hoof would be almost vertical. Five months later, as the flare was grown out, the upper growth angles have “normalized” as stride is lengthened and more natural movement is working on our side. As breakover comes back (relative to P3) stride lengthens. As stride lengthens, more natural angles emerge; a better type of “snowball effect”

This front left hoof was routinely “mustang rolled” at the toe and the heels were continually maintained at the callused sole plane. They practically lowered themselves and were never lowered into healthy sole. Meanwhile, massage and stretching of the limb was being performed by a professional sports massage therapist. The result was two or three degrees of remaining difference between the hooves and a very sound balanced ride. She now willingly picks up either lead and turns to the left with fluidity and ease. The reddened, rippled walls and divergent growth rings have almost grown out, replaced by smooth hoof horn growing at the same rate at heels and toe.

It is doubtful she will ever have “normal” hooves or body, but is happily working with what she’s got.

Any club foot that has been around a while will have a sensitive, unused, underdeveloped frog/digital cushion. You can fix everything else and still have the back of the foot too sensitive for the horse to land on, which will cause the shortened stride and resulting club foot on its own; another vicious cycle. Using foam hoof boot inserts and pea gravel loafing pens to develop the digital cushion and callus the frog will break this cycle like nothing else.



At the setup trim I found lameness on the left side and comfort in the right club foot. The left heels were being allowed to grow unchecked and wedged. The sole at the toe was severely thinned in an attempt to make the angles match. Most of the front left pain was caused by the crushing of the long under run heels.

The second set of photos was taken one year later. The horse is very sound on both feet. Did I fix anything? Not really; I just accepted the angle differences this horse needs and didn't go to war them. Although the veterinarian and a skilled massage therapist have been unable to pinpoint the source of the imbalance, we know it's there, somewhere. Fortunately if we just listen to the adaptive capabilities of the hooves, the horse can form exactly what it needs to compensate.

Trust that sole and don't allow the walls to flare! The result again, was another barefoot horse outperforming its former shod self.

The bottom line to all of this is that you can't force a hoof to make a horse sound. Almost always, I am called to club foot cases when the horse goes lame on the normal side. This is usually caused by people trying to force the hooves to match each other. This thinking often leads a farrier to cut the sole out from under P3 at the toe and allow the heels to grow unchecked on the normal foot. Two wrongs don't make a right. Treat the hooves as individuals, figure out the true cause of the club foot and see if you can help the true problem. As you fix or partially relieve the problem, the sole at the back of the upright hoof will turn into chalky material, indicating that the body is ready for you to lower the heels. Meanwhile, the horse will be more comfortable and move in the most balanced way possible to support daily life and healing.



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