

Special thanks to all of the American Hoof Association members. This information is the product each member's experimentation and feedback. As a team, we were able to evaluate the casting process on many horses in a wide range of situations and environments over time.

The Basic Need

After years of study, practice and the comparison of various trimming and shoeing methodologies, I am convinced that there is no better way to grow well connected walls onto flared or foundered horses than with routine, competent barefoot trimming and careful attention to the horse's diet and lifestyle. This is also the best way I have seen to build sole onto thin-soled horses, develop a healthier foot for navicular horses, grow out wall cracks and the best way to treat and prevent hoof problems in general.

I am equally convinced that hoof boots can, should and will be the "21st Century Horseshoe". Boot quality and technology continues to improve every day, and as better boots with a wide range of traction variations hit the market, it will continue to make less sense to limit the options available to the horse and rider by attaching permanent hoof protection or traction devices.

So with all the positives we have enjoyed with natural hoof care theory and practice, there have also been important negatives. The primary problem: Time. The competent trimmer often knows a hoof problem can be easily grown out, but it will take six months to grow a new hoof capsule. During this time the horse might be tenderfooted when it isn't wearing hoof boots. This is why I have been (and still am) such a strong advocate of booting in general. Hoof boot turnout is spectacular for the horse. The healing mechanics and comfort are simply without equal anywhere in the farrier world, but it does require work and dedication on the part of the horse owner; the boots/hoooves must be cleaned and inspected every day to prevent problems from excess moisture. Careful and constant scrutiny to padding and boot fit is needed to

prevent chafing of the skin. This of course works extremely well for some people; but is an impossibility or at least a 'deal-breaking aggravation' for others and many horses that could have been truly healed are instead stuck in a pattern of constant attempts to "patch up" the existing damage.

I have constantly dreamed of and sought out a compromise. Actually compromise is the wrong word; I have wanted to "have my cake and eat it too". We have desperately needed something that combines the healing mechanics of barefoot/boots with the convenience of horseshoeing. I (and many other trimmers and farriers) believe we have found it: Hoof casting. This is a tool so effective, it should be immediately added to every hoof professional's "bag of tricks".

Equicast

Over the last 19 years, Dave Richards (www.equicast.us 910-281-5658) developed Equicasts specifically for use on horse's hooves. The casting material is not the same as a typical fiberglass cast. Instead it uses a unique poly-cloth and resin combination that is far more durable, abrasion resistant and more flexible than a typical cast. The idea is simple on the surface: You use the quick-drying material to build a semi-permanent, 'below the hairline' custom hoof boot. Top podiatry clinics have trusted them for years, but their common use in the field has been limited. This should change. In general the cast combines the protection and laminae-relieving solar support of the padded hoof boot while it simultaneously "holds the foot together" better than a horseshoe. Add vertical flexion, heel expansion, pressure and release (rather than dangerous static pressure), plus little or no maintenance from the horse owner; this is a very good tool.

There is a learning curve to using the casts, but with a little experience they are easy to apply. Dave has instructional videos and detailed written instructions on his site that you will need to study, and Kim Cassidy details the tools and materials needed at www.clickandtrim.com/equicast.htm.



Typical 'open-soled' wrap recommended by Equicast (#2 foot with 2" cast shown)

The "black stuff" on the cast is residue from the foam pad that adhered to it during the curing/compression process

Here are the basics:

- 1) Trim and thoroughly clean the foot
- 2) Open the package and remove the roll of casting material
- 3) Place the roll in a bucket of water (for about 10 seconds- just enough time to do step 4)
- 4) Apply a bead of Vettec Adhere or Sole Guard to the hoof wall (I prefer about one inch above the ground)
- 5) Wrap the cast (This part takes a bit of finesse and experience to do well. Dave provides "practice casts" with no resin to practice your wrapping technique.)
- 6) Place the wrapped foot onto a foam pad (to mold it to the bottom of the foot) and pick up the opposite foot to expand the hoof capsule [KC LaPierre www.equinepodiatry.net has placed a "provisional patent pending" on the use of a foam pad during this process]
- 7) I like to also immediately move the horse before full curing to further increase hoof and cast expansion. The cast will be dry in about two minutes (Varies with temperature and humidity- Cindy Sullivan www.tribeequus.com reports that the water temperature is a big deal. Cold water gives more curing time, hot water gives a much faster curing time. Cold water can be beneficial to slow down the curing time in hot weather; hot water speeds curing time in cold weather).
- 8) Trim away any material that is touching the coronary band.

The results are extraordinary (no I am not on Dave's payroll). It is amazing how well it makes horses feel; particularly horses with severe wall separation, thin soles, and/or laminitis. I routinely use them for the first few weeks after pulling shoes (if the soles are thin or the feet are tender) and then let the horse go bare and fit riding boots as usual when it is ready.

Potential problems?

Even though I saw immediate benefit, I was very quiet about using them for a while. I was concerned about a few possible problems:

- 1) I was concerned that the casts might reduce hoof flexion, restrict blood flow and lead to heel contraction and/or slow healing.

I believe that the most important reducer of hoof flexion and circulation is lameness; a lack of movement or worse: Compensative movement. No doubt the presence of the cast robs some of the flexion of the hoof capsule, but the casts tend to make compromised horses so comfortable, the increase in correct movement seems to create an excellent "circulatory trade-off". In the real world the foot is healthier overall when you remove a cast. Well connected wall growth and healthy laminae will have been produced and the sole will be thicker (from what I've seen, every time).

Granted, I do tend to only make 6-7 wraps with the cast, usually wasting half of the roll. I also use the casts in two week cycles. I pull off an old cast at two weeks, evaluate the situation, and then decide whether there is a need to go another two weeks in the casts. Although it is more rigid at first, a cast that has been used for two weeks is very pliable. It is more like heavy cloth than a rigid cast. This is probably a very important feature to their success.

The fact that the cast does reduce hoof flexion to an extent can actually work in your favor. It is very common for domestic horses to have under-developed digital cushions and lateral cartilages. The weakness and instability causes them to incorrectly impact on their toes. They can move this way for a lifetime and never develop the back of the foot. The stability of the cast often breaks this pattern and allows the horse to comfortably impact heel first; starting the process of developing the back of the foot.

- 2) I was concerned that the cast might excessively weaken/soften the foot and lead to problems with fungal infection in the frogs and white lines.

The cast breathes. In my testing process, I have used them for 3-4 week intervals in wet, muddy turnout conditions with no significant problems with fungal infection or excess moisture. I do believe that no form of hoof protection could be healthier than barefootedness IF the current health and conditions allow it. If not, the casts are a very useful tool with minimal negative effects. When you first remove a hoof cast, the sole and frog will be soft and unconditioned, but typically undamaged. Because of this softness and lack of callus, I expect to need hoof boots for riding at first, but have not seen any further complications.

- 3) I was concerned that they might be over-used; becoming another style of permanent horseshoeing that ultimately degrades the health and quality of the foot. "Use it or lose it" is nature's law.

This one, I still worry about. It made me very slow to publicly endorse hoof casting in general. So far I have seen nothing but excellent results, but the longest I have ever used them was for 6 weeks (3 two-week applications back to back). Every other case was ready for barefoot turnout and/or booted riding within 4 weeks. I suspect that long-term, back-to-back use would start to degrade the foot over time (I believe this would be the case with ANY form of permanent hoof protection). I use them as a transitional tool with great success, but feel they should probably remain a transitional tool; a temporary measure to get the horse past a bad situation.

Variations

Once you start working with hoof casting and epoxies, your own imagination is the limit. I'll discuss some basic variations I have seen success with:

The manufacturer recommends an open-soleed wrapping method (shown above). The cast covers the lower half of the hoof wall and laps over the white line and then covers about 3/4 inch of the outer perimeter of sole (2 inch casts will work on most 'non-draft' horses). With this method, most of the sole and half of the frog are exposed. This method works very well when there is adequate sole thickness, and the primary concern is lamellar integrity or caudal foot pain. This is my personal favorite method for most laminitic horses, particularly in the acute stage.

When soles are thin or when subsolar abscessing is present, I typically use a wide (4 inch) cast to create a boot that completely covers the bottom of the foot. The cast alone is sometimes adequate for these horses, but usually I prefer to add some type of pad to the bottom of the foot. When you use this method, be sure to load the foot onto a firm pad or pile of sand to compress cast wrinkles on the bottom of the foot. Then after the cast cures, use a sharp hoof knife (as if paring a sole) to further remove any bumps in the material that could cause dangerous pressure points.

I have used Easycare Comfort Pads and Dome Pads (www.easycareinc.com) in the casts with success. The easiest way to do this is to first glue the pad to the foot with Vettec Sole Guard or Adhere. While the glue dries, let the pad fully compress (by holding up the opposite foot), then wrap the cast as usual.

My favorite method (but more expensive) is to create a custom pad with Equethane CS Sole Pack (www.vettec.com). The worthwhile result is a much cleaner environment between the foot and the pad. For this method you will need access to the bottom of the foot for about two minutes (as opposed to a few seconds for a foam pad), so this is important for deciding which to do in a given situation.

Detailed instructions are available from Vettec, but the basics: To form the CS pad, thoroughly clean and dry the foot, and then apply the CS to the bottom of the foot, filling in the solar concavity, collateral groves and frog sulcus. Once the product is applied through the mixing tip, it will set up in a minute or two (depending on temperature and humidity). During this time, place a piece of wax paper over the pad so you can use your fingertips to smooth, shape and control it as it dries. If the back of the foot is deep or contracted, a temporary duct tape "dam" at heel level (around the bulbs) is very useful. Once the product partially sets up, you can leave the wax paper in place and place the foot on flat ground to let the horse rest. When the CS hardens to a rubbery consistency, remove the wax paper and wrap the cast as usual.

Another great trick is to do anti-fungal/anti-bacterial soaks through the cast. This is especially helpful with P3/sole penetrations, subsolar abscesses, thrush and white line disease. Personally I use 1 hour soaks (with a soaking boot) with a 50% water/apple cider vinegar solution. I have also talked to other professionals who have successfully used White Lightening and Clean Trax with no harm done to the casts. Just be sure the soaking solution doesn't harm live tissue. This is particularly important because the cast may hold the solution next to the foot longer than you think.



Creating a pad with Vettec Equethane CS and a full coverage cast for thin-soled horses (#2 foot with 4" cast shown)

These methods and more can be combined to maximize comfort and healing dynamics for the toughest of cases. One of the first horses we worked with the casts was a 4 year old Thoroughbred with zero sole depth (most of the solar papillae at the toe had been exposed by the previous farrier's rasp), full sole penetration at the toe, a 1/2 inch distal descent of P3 and subsolar abscessing.

This is a most challenging type of case. If you peripherally load the horse in an attempt to unload the open wounds under P3, there is no vertical support of the skeleton (the whole horse is hanging from the already compromised laminae). The horse will continue to sink through the hoof capsule. On the other hand, if you load P3 on the corium (with no sole present), circulatory disruption and tissue death are inevitable. Putting our heads together with the attending veterinarian, the casting material, epoxy and a bit of imagination allowed us to come up with a life-saving solution. There was still adequate sole depth in the back of the foot, so we created caudal support with the CS, leaving the wounds at the toe open. We then applied the cast to 'hold the laminae together' and hardened it on a flat surface so that it did not make contact with the open wounds. We then had the barn manager soak daily (ACV/Water) through the casts to prevent further infection.

To our surprise, the horse walked off comfortably, and when we pulled off the casts two weeks later, the horse had produced 1/2 inch of new sole. The bottom of the foot had been protected well enough to prevent further damage and wear, but stimulated enough to produce an incredible amount of new sole. Now the horse (previously immobile in bar shoes and pads) is comfortable barefoot and the distal descent is steadily reversing. [A video of each visit to this horse will be available on DVD by October '08]

Another useful variation can provide more working time to the process when needed. The cast can be wrapped first, and then the water can be rubbed into the cast afterwards. This slows curing time. I have used this to add additional hoof/cast expansion by walking the horse, and also to occasionally get two feet done with one roll (Yes I have "tightwad tendencies" - sorry Dave). This method also provides better glue adhesion, so it is the method of choice for upright feet with no wall flaring.

Cast Wear

In soft pasture terrain, the casts typically last 3-4 weeks (depending on the amount of and balance of the horse's movement), though I personally consider 3 weeks to be my maximum. Typically they wear through in small spots at the toe and heels in about a week, but then stay the same for a few weeks after that. Hard packed or rocky paddocks can wear them out within a week. In this type of terrain, I use Vettec Equethane Superfast to reinforce the outer perimeter of the foot after the cast dries (but before the horse steps into dirt). This adds considerable life to the package.

When I (and my colleges in the American Hoof Association) first started experimenting with the casts as a group, we had high hopes

for their use for riding. While a horse certainly can be ridden in the casts, with the weight of a rider they wear out quickly in rocky terrain, even with epoxy reinforcement. So the hoof boot remains our tool of choice for riding, but the casts have proven themselves beyond question for rehabilitation and turnout.

Special Trimming Considerations

Please read the other articles on www.hoofrehab.com and watch the DVD Series- Under the Horse for detailed trimming information.

When a horse is to wear a hoof cast, I essentially trim the foot as if it were to be bare/booted, with a few minor exceptions. When barefoot horses are sensitive in the back of the foot, I typically leave the heels longer (up to 1/2 inch past the callused sole plane). The idea is not to lift the heel, but to slightly reduce the pressure on the over-sensitive frog (as the heel sinks into terrain) so that the horse will be comfortable enough to impact the ground heel first. The cast effectively relieves frog pressure enough that leaving this extra heel length is generally not necessary and usually not desirable. In short, I have a greater tendency to lower the heel closer to the callused sole plane if the horse is to wear a cast.

Also, with severely flared walls, I tend to be slightly more aggressive with the roll/bevel on the outer wall if I plan to use a cast. It is difficult to generalize (every horse is different) but if a given horse would need a flared quarter wall left 1/16th inch longer than the sole plane to be comfortable, you could get by with rendering the quarter wall slightly passive to the sole if using a cast. The result is a greater ability to grow out wall flares without causing discomfort.

I consider the application of hoof casts to be "for experienced professionals only". An improperly applied cast could cause serious problems. A cast left on too long could wear through at ground level and slide up the leg, damaging the coronet. A cast wrapped too tight could rob circulation. The duration and method used requires careful consideration of many factors. I have been so impressed with the results, though, I firmly believe that every farrier and trimmer should immediately add this to their 'bag of tricks'. When starting out, my advice is to get several extra casts to apply to your own horses while no one is looking. Your learning curve will be vertical at first and you will make mistakes. It is best that you are not learning to wrap while also struggling to access a lame horse, and frankly it is also best that the vet and horse owner are not looking over your shoulder while you botch a few casts.

My learning curve is still vertical as well (I like it that way!). Please check back (at www.hoofrehab.com) for updates. I suspect I will be constantly adding to this article as I learn more.



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