

Using Hoof Casts to Enhance Farriery: a New Perspective

By Stephen E. O'Grady, DVM and Derek Poupard, CJF

INTRODUCTION

The equine foot, with healthy structures, is superior in its natural or barefoot state as opposed to the shod state with regards to accepting the weight of the horse, shock absorption and dissipating the energy of impact (Davies 2007).

However, the domestic use of the horse invariably necessitates applying shoes for several reasons:

- Protection when wear on the ground surface of the foot exceeds growth at the coronet.
- Maintaining or enhancing functionality such as providing safety and traction
- Therapeutic aid to improve the structures of the foot and treat disease/lameness.

There are many aspects of barefoot methodology that can be applied to, or combined with traditional farriery, and warrant consideration. The first author has been consistently successful in improving the structures of the hoof capsule, especially the palmar section of the foot, in a huge number of horses by leaving the horse barefoot for a short period of time. The use of hoof casts is not new

to veterinary medicine as they are used for fractures, laminitis, avulsions, and countless other problems affecting the equine foot. Recently, casts have gained popularity in farriery to maintain horses in the barefoot state, hoof wall defects, white line disease and compromised feet where shoes are not an option.

HOOF CASTS

Hoof casts have always been used in veterinary practice to treat foot problems when indicated, but I was never an advocate for using them in farriery. My main concern was the restrictive nature of the cast that impeded the physiological function of the foot and the inconsistent methods of application. Recently, Derek Poupard, CJF, DipWCF pioneered a revolutionary new technique for cast application and launched a company

known as Hoofcast LLC. The technique is geared toward providing strength, protection and stability to the hoof capsule yet does not interfere with, or compromise, foot function. There are many reasons why this cast application can and should become a viable aspect of good basic farriery. The use of a foot cast presents a viable option to farriers that can be used on its own merits when necessary, or combined with traditional farriery.

Scenarios where a cast is beneficial:

- Rehabilitating the foot in the barefoot state
- Transitioning the horse from being shod to barefoot
- Permits light exercise when horse is being maintained in the barefoot state
- Stabilizing / increasing thickness of a thin or compromised hoof wall
- Aids in attaching a shoe using nails
- Stabilizing hoof wall defects (toe, quarter and heel cracks)
- White line disease
- Can be used as an alternative to glue-on shoes



Hoof casts provide strength, protection and stability to the hoof capsule.

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APPLICATION OF THE CAST

The cast application described here will be different than the one currently being used. Trimming the foot prior to cast application is always a crucial step and will depend on whether the foot is being rehabilitated for a hoof capsule distortion, being transitioned to barefoot or going to be shod. Briefly, if the horse is going to be left barefoot, the foot to be casted is brushed briskly with a wire brush, no horn is removed from the solar surface of the foot, the heels of the hoof capsule are trimmed to the plane of the frog if possible and the edges of bearing border of the hoof capsule is rounded using the rasp at an angle. If the horse is being shod, the guidelines for trimming will adhere to the principles of good basic farriery. Briefly, the authors draw a line across the widest part of the foot and trim the foot appropriately, attempting to achieve approximate proportions on either side of the line with the heels of the hoof capsule and the frog on the same plane (**Figure 1A**).

To apply the cast, the outer surface of hoof wall at the heels is cleaned with a rasp and the remainder of the outer surface is sanded using a 3M® medium grit sanding block (**Figure 1B and 1C**). A thick focal layer of an acrylic adhesive compound of your choice is applied to the outer surface of the hoof wall at the heels, as this will act as the anchor point to stabilize the cast. A thin layer of acrylic is randomly spread on the remainder of the outer hoof wall, stopping below the coronet. Starting at the heels, 2- or 3-inch casting tape is wrapped around the perimeter of the foot (**Figure 2A, 2B and 2C**). The cast is applied, without being immersed in water first, as this allows the acrylic to permeate between the fibers of the cast which forms a bond with the outer hoof wall. The cast will extend to just below the coronet and at least 0.5 inches below the hoof wall to create a fold onto the ground surface of the foot. The cast can be thickened at the heels and/or the quarters, by creating some folds by layering the cast back and forth and then enveloping the folds as one continues to wrap around the perimeter of the foot. With the cast in place, a sponge soaked in water is used to thoroughly wet the cast, which causes it to cure. This step is unique to this application, as the acrylic incorporated in the cast that adheres to the outer

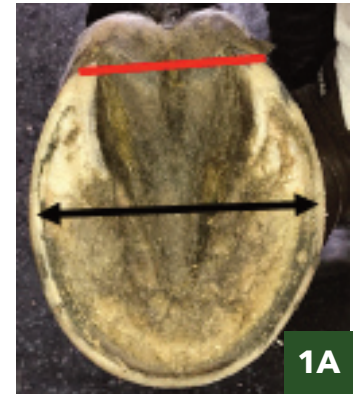


Figure 1. (A) Foot being trimmed to remain barefoot shows a black line drawn across the widest part of the foot, approximate proportions on either side of the line. The red line shows the hoof wall and frog on same plane. **(B)** The heels being cleaned with a rasp on outer surface of the hoof wall. **(C)** Outer hoof wall being sanded to remove any debris.

Figure 2. (A) A thick layer of acrylic being applied to the cleaned heels. **(B)** A light coating of acrylic applied to the outer surface of the hoof capsule. **(C)** Cast is started at the heel and continued around the perimeter of foot (note how the acrylic permeates the casting tape).



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hoof wall is now beginning to cure and the water added to the cast now causes the cast to cure. Interestingly, neither the reaction of the acrylic or the cast interfere with the other. Finally, the cast is covered with plastic wrap and the foot is placed on the ground to flatten the cast on the solar surface of the foot. (Figure 3A, 3B, 3C and 3D).

The most unique part of this application is removing the section of cast that bridges the bulbs of the heels. Once the cast has cured, using the edge of the rasp, the cast is scored on either side of the frog from the frog sulci to the edge of the cast at the hairline of heel bulb. The score lines are now cut through using a thin hoof knife or some form of saw blade or gigli wire. The first author uses a hacksaw blade handle (available from Amazon®) which can be used with one hand and cuts easily through the cured cast. The section of cast that covers the base of the frog is removed and the edges of the cast are smoothed with a rasp and blended with the heel bulb (Figure 4A & 4B & 5C).

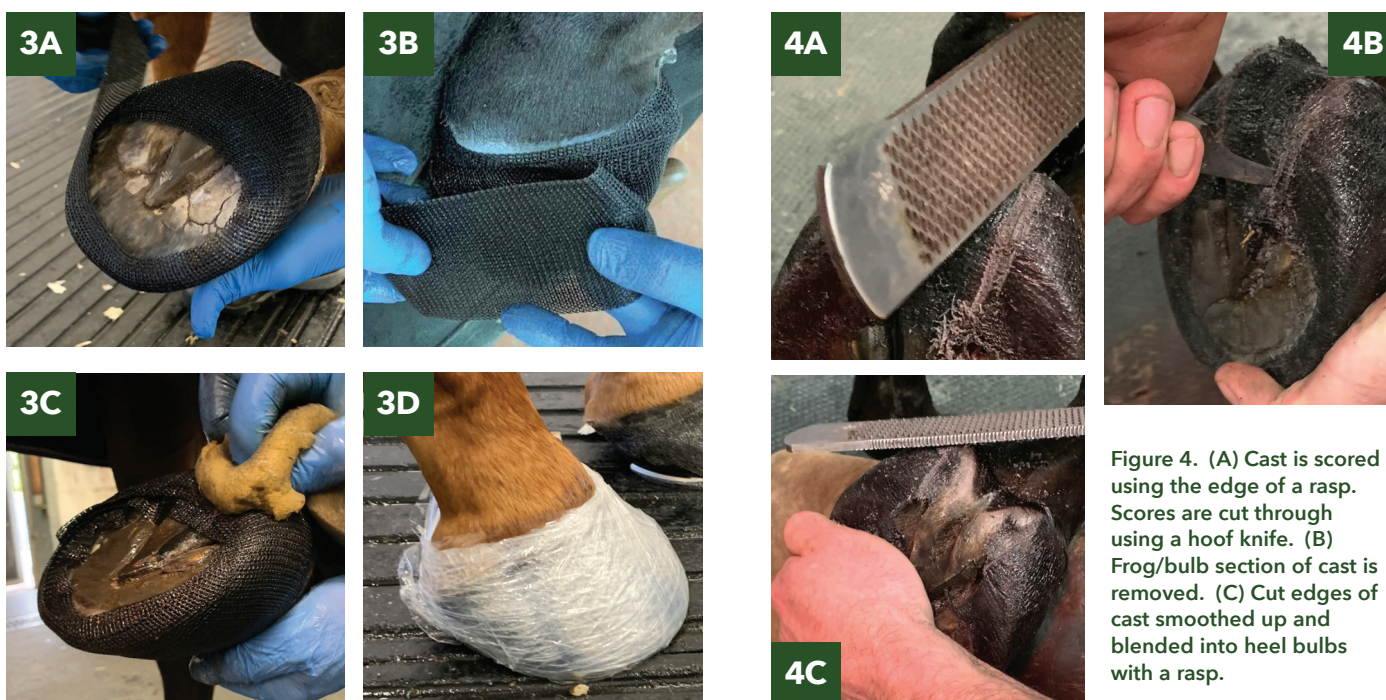


Figure 3. (A) Cast folded and covering the bearing border of the foot. (B) Cast folded back and forth to increase thickness. (C) Sponge used to wet cast when in place. (D) Foot covered with plastic wrap.

Figure 4. (A) Cast is scored using the edge of a rasp. Scores are cut through using a hoof knife. (B) Frog/bulb section of cast is removed. (C) Cut edges of cast smoothed up and blended into heel bulbs with a rasp.

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Figure 5. (A, B) Lateral, dorsal, and solar view of the cast in place. (C) Note the protection and stability of the heels.

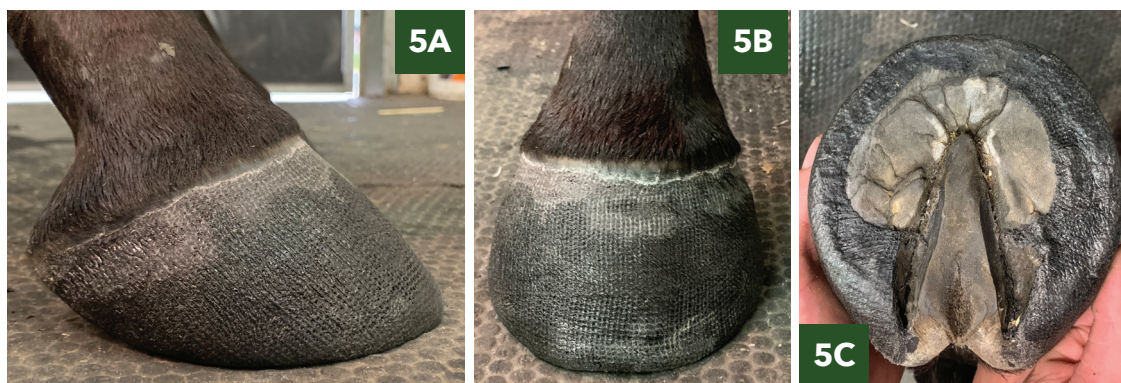


Figure 6. (A, B) Lateral and dorsal view of a foot with a shoe applied after application of a cast.



Finally, any cast material above, or at the coronet, is removed by light rasping as the acrylic does not extend to coronet, so cast is not adhered to this area (Figure 5). Following the curing process, a shoe can now be applied to the casted foot (Figure 6).

CONCLUSION

Let's be clear, the authors are not advocating hoof casts as an alternative to farriery - rather an option to combine with or enhance good basic farriery. It can readily be noted, the application of a hoof cast, as described above, adheres to the outer surface of the hoof, affords protection, and provides strength and stability to the hoof capsule while allowing the full physiological function of the foot. The increase bulk added to the hoof wall allows a shoe to be attached in cases where nailing was difficult. Furthermore, the cast forms an interface at the heels that adds protection and decreases wear that arises from the heel moving against the shoe during weight bearing. This method of cast application has huge implications when considering any aspect of farriery, whether the horse is shod or barefoot. The reluctance of many veterinarians, farriers and horse owners to remove the shoes to rehabilitate the hoof capsule or transition to being barefoot is the initial discomfort the horse may experience and the damage to the hoof capsule without the protection of a shoe. Here is a hoof cast application that will bridge that gap, while allowing the structures of the hoof to adapt, strengthen, change foot conformation, and restore. The potential uses for this hoof cast application are unlimited and only now being imagined. ■

Dr. Steve O'Grady operates Virginia Therapeutic Farriery which is a referral practice devoted to therapeutic farriery located in Keswick, Virginia. Website: <https://www.equipodiatry.com>
Disclaimer: Dr. O'Grady has no financial interest in Farrier Product Distribution (FPD) or Hoofcast LLC but routinely uses and recommends their products in his veterinary practice.
Derek Poupard is the head farrier for Godolphin with locations in Dubai and Newmarket, England. Disclaimer: Derek Poupard has a financial interest in Hoofcast LLC.

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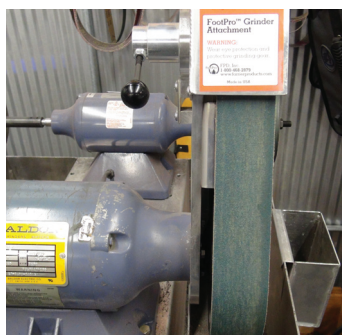
We have all heard the sayings “time is money” and “wasted time is wasted money.” The use of grinders to modify shoes and buffers to dress hooves not only improves time efficiency; it also reduces wear and tear on the body by eliminating the need for additional forging, hot rasping or the use of a finish file. Using grinders and buffers becomes inefficient when one does not care for them properly, causing a premature end to their usefulness.

Improvements in abrasive component technology have greatly enhanced material removal rates and the life of the abrasive. However, without proper care, belts and sleeves can have their lives shortened, even with the new improvements. One of the primary reasons for shortened belt life is loading. Belt loading tends to occur most often when grinding or sanding non-ferrous metals such as aluminum.

Using grinders and buffers becomes inefficient when one does not care for them properly.

It can also occur when working with softer materials such as leather and urethane pads or, in the case of buffer sleeves, hoof wall material. In any of the aforementioned cases, the material being ground away becomes trapped in-between the abrasive particles to the point that there is no longer definition between the particles. Cutting performance is greatly reduced when this happens and it is often incorrectly assumed the belt has reached the end of its serviceable life.

Luckily, belt loading is easily remedied in seconds with the use of a rubber belt cleaning stick. With regular cleaning you can expect to see increased belt life and reduced working time. The steps below show the proper use of the rubber belt cleaning stick to save you time and money. ■



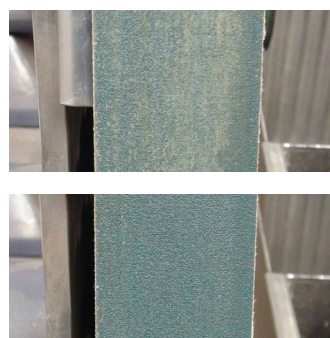
A zirconia belt with material loading present.



To clean belt, place rubber cleaning stick on belt at a 45° angle.



Turn on grinder. Maintain contact with belt and sweep side-to-side to clean.



Belt Comparison
(Top) Dirty, (Bottom) Clean



A hoof buffer sleeve loaded with hoof material.



To clean sleeve, hold buffer against rubber stick and run drill. Sweep buffer side-to-side until material is removed. Be sure to set drill direction to ensure rotation is throwing material down and not up.



A clean hoof buffer.

TOOL TIPS

MAINTAINING YOUR HOOFJACK HOOF STAND: CLEANING THE TENSION KNOB

The tension knob of the Hoofjack hoof stand is put under a lot of stress with daily use. Tightening and loosening the knob allows dirt and other particles in the threads to build up in the nut over time. This buildup can wear tension knob threads, eventually causing it to become loose or not tighten at all. It is important to note that the threads of the tension knob are designed to be softer than the threads in the nut. This is to prevent damage to the nut. Over-tightening of the tension knob can cause premature wear or damage to the threads, so be sure to hand tighten only. With a little bit of preventative maintenance (every 30 days is recommended) and care, you can prolong the life of your tension knob threads.



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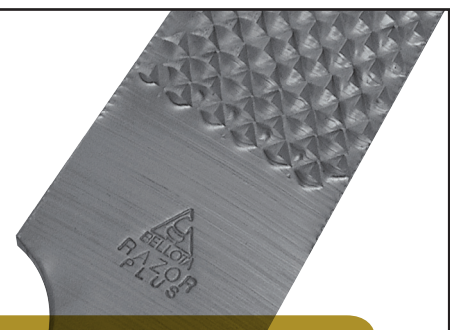
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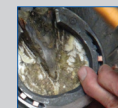
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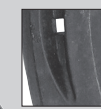
Clips between the second and third nail holes



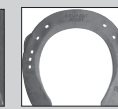
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