TOOL CORNER:

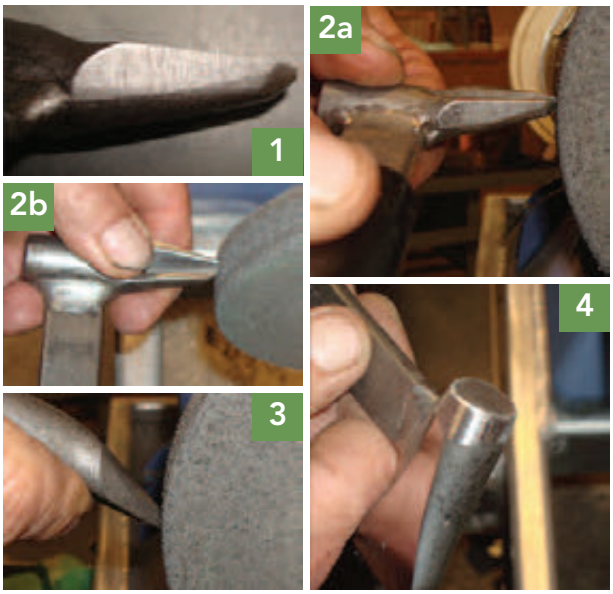
Maintenance of a Bloom Undercut

by Roy Bloom

The undercut (gouge) tool made by Bloom Forge requires occasional maintenance. You may also have an older model that was more pointed. Feedback from users of the original design led to a design that is less pointed and works much better. There are just a few steps in maintaining or modifying your tool. A deburring wheel as shown in the images is a good method. The FPD buffing/sharpening wheel or a Scotch-Brite wheel have enough grit to work since you aren't taking a significant amount of metal off. You can also use a fine grinding belt - 100 grit or finer (larger the number, finer the grit) but you have to be more cautious.

Carefully press the tip of the tool against the wheel- holding it level. This leaves an upright end. You can then take care of bottom side of the tool on the same wheel, making sure that the end is not too thick.

While you are working on the tool you should dress the struck end of the tool to make sure there is no mushrooming. This could lead to chipping when in use. Simply dress it back to the original diameter of the end and put a slight bevel on the edge. It is better to do this maintenance using a fine grinding belt rather than the deburring wheel.



1. New tool, note the end is not pointed.

2a & b. Dress end of tool to take away any point while holding level

3. Turn over and carefully taper the bottom side so it is not too thick on the end.

4. Dress the struck end - this is something that should be done with all tools that are subject to mushrooming or chipping.

The Natural Angle

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The Wooden Shoe

Farriery has so many options

By Stephen E. O'Grady, DVM, MRCVS, APF

One of the amazing aspects of the farrier profession is that there are so many practical options available to the farrier when an alternative to a horseshoe may be necessary. The wooden shoe has become a practical and very effective option in my practice for treating not only chronic laminitis but many other foot problems. Among the other foot problems that may benefit from the wooden shoe are extensive white line disease, fractures of the distal phalanx / navicular bone and an immediate increase in sole depth when applied to horses that have feet with thin deformable soles. With chronic laminitis and these other foot problems, the wooden shoe is only used as a transitional device to promote hoof wall growth at the coronet and increase sole depth. Once the necessary hoof mass is present to achieve stability and realignment of the distal phalanx within the hoof capsule, conventional farriery is again used or the horse can be left barefoot. To be effective, the farrier needs to understand the principles of the wooden shoe in order to use his or her skills to apply the appropriate foot trim combined with the fabrication, proper placement and application of the shoe. The wooden shoe is simple to apply, but as with any procedure, there is a learning curve, so chronic laminitis will be used as an overview or example of the procedure.

There are 3 basic mechanical principles that are used to treat chronic laminitis:

- Redistribute the load (weight of the horse) on the ground surface of the foot
- Reposition breakover
- Provide heel elevation when necessary to decrease stress in the deep digital flexor tendon (DDFT)

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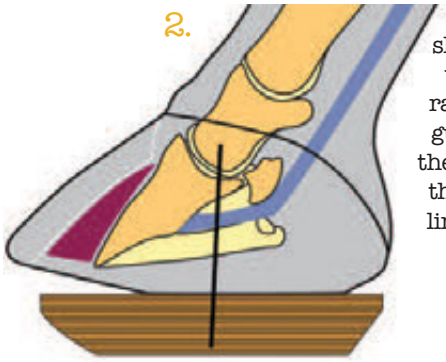
1a. and 1b. A horseshoe with a broad toe is used as a template. Cut out the wooden shoe in the shape of a horseshoe using an angle saw or it can be cut and modified using carpentry or farriery tools to provide the appropriate bevel.



2. Illustration shows the ideal trim using the radiograph as a guideline. Note the placement of the shoe. Black line denotes the center of rotation.

3. Wooden shoe placed on foot with chronic laminitis. The last screw placed against the hoof at the heel is termed a 'strut.' Note the black line is the widest part of the foot. Red line is drawn from the dorsal coronet to the ground denoting breakover.

4. 2 inch casting tape is placed around the perimeter of the shoe/foot incorporating the screws to add security and provide circumferential stability to the foot.

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The wooden shoe has all the mechanical components of other farriery systems previously advocated for the treatment of chronic laminitis yet it may possess some additional advantages over previous methods used. A major advantage of the wooden shoe is its ability to concentrate the load (weight) evenly over a specified section of the foot due to its flat solid construction[1, 2, 3].

Other advantages include:

- *non-traumatic application* (eliminates the need to block the horse if painful)
- readily accessible materials (wood)
- simplicity of construction
- breakover and heel elevation can be fabricated into the shoe
- beveled perimeter of the shoe decreases torque on the lamellae (in a dorsal and lateral/medial direction)
- beveled perimeter of the shoe concentrates the load (weight) under the distal phalanx due to the solid base of the shoe

Heel elevation, when necessary, can be applied in a uniform manner by altering the shape of the wooden shoe or by attaching a degree pad to the foot surface of the shoe. The shoe can be easily altered according to radiographic guidelines and the structural requirements of the individual foot conformation.

Materials such as wood or layered plywood are used to create the shoe. A horseshoe with a broad toe is used as a template to cut out the wooden shoe in the shape of a horseshoe using an angle saw or it can be cut out and then modified using carpentry or farriery tools to provide the appropriate bevel. A bevel of 45° is created around the perimeter of the shoe which helps negate the ground reaction force (GRF) exerted on the lamellae (Figures 1a & 1b on page 1).

A radiographic study consisting of a lateral and DP view are essential to determine the position/displacement of the distal phalanx within the hoof capsule and the radiographs are then used as a guideline for farrier trimming. Using the widest part of the foot as a landmark, the heels are reduced from this point palmarly (toward the heel) according to the radiographs and the toe is backed up from the dorsal hoof wall. Following the trim, the hoof wall at the heels and the frog should now be on the same plane. The shoe is now fitted to the foot; impression material is placed in the frog sulci and over the frog if necessary to create a solid flat plane across the heels. The shoe is attached to the foot using thin drywall screws placed in pre-drilled holes through the hoof wall located behind the widest part of the foot and the horse is then allowed to stand on the shoe to disperse the impression material in an even manner. A rasp is used to form a vertical line extending from the dorsal coronet to the ground to determine the point of breakover. Using a rasp, the bevel at the toe is extended back to this point to create the

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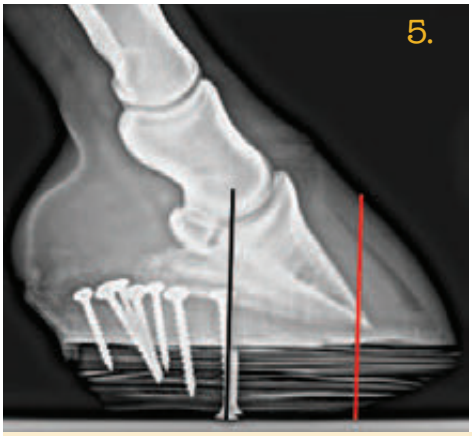


Left (5): Lateral radiograph showing placement of wooden shoe and point of breakover. Black line is center of rotation and red line is point of breakover. Center (6a): Kerckhaert Steel Comfort shoe used to transition out of wooden shoe. Note the breakover has been modified further. Right (6b): Kerckhaert Steel Comfort shoe placed on foot. The flat surface of the wedge insert is used to create even pressure across the hoof wall at the heels and the frog.

desired breakover. Additional screws can be placed against the hoof wall around the perimeter for stability and to act as 'struts'. Finally, 2 inch fiberglass casting tape is placed around the perimeter of the hoof wall and the wooden shoe which encompasses the screws and the struts to further secure the shoe and provide circumferential hoof wall stabilization (Figures 2, 3, 4 & 5).

The shoe can be further modified to unload painful areas of the sole or if the sole has dropped or prolapsed by recessing the shoe's solar surface. Shoe modifications are easily added or subtracted (i.e. rasping the toe of the shoe to adjust breakover), with the foot in the farrier position. The wooden shoe being malleable will often be modified by normal wear which allows the horse to find a comfort zone unique to its individual needs.

Post application, the horse is radiographed at 4-5 weeks to determine hoof wall growth and sole depth. Depending on the increase in structural mass, the shoe can be left on longer, reset once more if necessary or changed over to a conventional horse shoe. The DDFT musculotendonous unit will shorten due to the rotation and it will further accommodate/adapt to the heel elevation provided by the wooden shoe. This must be taken into consideration when transitioned back to a traditional shoe as the heel elevation needs to be lowered gradually. After the appropriate trim, most any steel or aluminum shoe can be modified to provide the necessary mechanics. I often use a Kerckhaert Steel Comfort shoe with the toe modified further for enhanced breakover and a 2° or 3° wedge insert to provide the necessary heel elevation. The heel elevation is reduced on subsequent resets (Figure 6a & 6b).

Various farriery methods have been described for treating chronic laminitis, yet no particular method has become the preferred choice. The wooden shoe may possess certain advantages over existing methods such as redistributing the load evenly over the palmar/plantar section of the foot due to its flat solid construction and the mechanics (beveled perimeter, breakover and heel elevation) that can be incorporated directly into the fabrication of the shoe. It should be apparent that the advantages of this farriery option will also be limited unless strict attention is paid to the details involving radiology, foot preparation and application of the shoe.

References

1. *O'Grady. S.E., Steward, M. The wooden shoe as an option for treating chronic laminitis. Equine Vet Edu 2009;8:272-276.*
2. *O'Grady, S.E, et al. How to Construct and Apply the Wooden Shoe for Treating Three Manifestations of Chronic Laminitis. in Proceedings. Amer. Assoc of Equine Pract 2007;53: 423-429.*
3. *O'Grady, SE, Farriery for Chronic Laminitis. In: Pollitt, CC, ed. The veterinary clinics of North America, vol. 26:2. Philadelphia: W. B. Saunders, 2010; 407-423.*

Indications of Hoof Wall Stress

by Dave Farley APF, CF

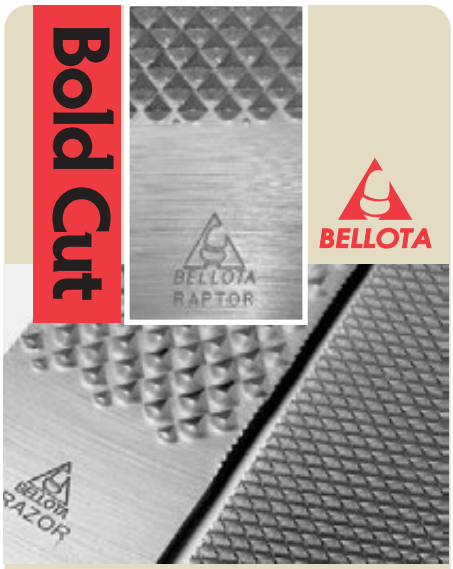
One of the biggest problems we see these days is not so obvious until the shoe is removed. The *"12 Points of Reference"* DVD that is available from farrierproducts™ dealers, refers to the observation seen in this foot (Picture 1) when the shoe is pulled. The perimeter of the hoof wall should mirror the coronet band. As you can see, this foot is showing the typical signs of a perimeter fit shoe that was punched too fine. When the foot is trimmed and the toe wall thickness is allowed to extend beyond where Mother Nature wants it, a stress point is created. The stress is reflected in the stretching of the white line, the toe crack and hemorrhaging of the white line.

There are a lot of causes of stress in the hoof; conformational, poor hoof prep, shoe placement or a combination of these factors. It's important to be able to recognize the signs of stress in order to determine how you will trim the hoof and what type of shoe and placement you might choose to reduce the stress.

A toe crack will usually start at the bottom of the hoof wall in the center of the stress point. If this is not addressed and the lever is not removed another crack may start parallel on one or both sides of the toe crack. These cracks will connect with the weak points in the hoof wall. The weak points in the wall are the old nail holes, which were not driven in the right area to start with. Nails driven in the center of the wall will create a weak point. Nails should enter the white line or the outside edge of the white line. This does less damage to the hoof and allows for stronger nailing.

This problem in the toe is almost always accompanied by the heels pulling forward, causing the outside heel to roll under. Picture 2 shows the foot after applying a Kerckhaert DF Grand Prix shoe. The fit addresses the rolled under outside heel and is set back to relieve the stress on the toe. The crack will grow down (disappear) and the foot becomes healthy again and reduces the chance of soft tissue damage occurring somewhere else in the limb.

This is the first in a series of problems we will cover in the Natural Angle. If you have any questions or comments please email fpd@farrierproducts.com.



RAPTOR
The Bellota Raptor Rasp is 1/2-inch wider than the other Bellota rasps, providing a greater cutting surface. It features a maximum cut on the rasp side and a coarse cut on the file side.

RAZOR
As its name implies, the rasp side of the Razor offers an extreme cut, while the file side is coarser. The 14-inch rasp incorporates a new tooth design to reduce clogging and to retain its sharpness.