The Natural Angle

Volume 19: Issue 4

This newsletter Published for Montague Blacksmith Supply

Managing and Treating White Line Disease

By Austin Edens, CJF

White line disease (WLD) in horses is a hoof condition where anaerobic bacteria, fungi, or a combination of both invade and destroy the white line. With the deterioration of the white line, many problems arise such as; loss of structural integrity, abscessing, mechanical founder, and loss of sole depth.



A crack was discovered on a laminitc zebra at a local zoo. After the zebra was anesthetized, a wall resection done after x-rays revealed a large WLD cavity.

CAUSES:

White line disease (WLD) in horses is primarily caused by opportunistic fungi and bacteria that invade weakened or compromised areas of the hoof wall. These anaerobic microbes thrive in a moist cavity that is walled off from the outside world. As the WLD progresses, it creates its own larger habitat for more fungi and bacteria to colonize. I believe any horse is prone to WLD, but horses at highest risk are:

- Horses with seedy toe.
- Horses with stretched laminae from chronic laminitis.
- Poor conformation or balance.
- Wet-dry environmental cycles that weaken hoof integrity.
- Mechanical stress on hoof capsule from uneven weight-bearing.

DISCOVERY AND DIAGNOSIS:

We have all worked on feet and felt a hollow spot, or investigated a small hole that revealed a large cavern. After discovering WLD, it can be tricky finding the margins of the cavity. WLD is like a wildfire. The leading edge of the WLD cavity is our main concern. If we fight the fire where it has already been, we aren't doing anything effective. We must extinguish the flames at the leading edge to stop the progression.

After discovering a WLD cavity, my first procedure is to investigate with a probe to see how large it is. If I am unsure and need further diagnostics, I will ask a veterinarian for x-rays with multiple views of the cavity. This can be helpful in formulating a strategy on debridement and treatment of the WLD.



A chronic laminitic horse with a large WLD cavity prior to resection.



X-ray showing the extent of the cavity.

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TREATMENT:

Small cavities - Early detection of WLD cavities is key to prevention. If a cavity is small and its margins can be debrided from the solar surface, resection of the hoof wall may not be necessary. First, all flaky tissue should be removed, and if I am certain I have exposed all the leading edges, I may opt to pack the cavity with Allen's Copper Sulfate and FootPro CS Clay. The Allen's CS dissolves during the course of the shoeing cycle and leaches into the hoof wall, disinfecting the fungus and bacteria causing the WLD. The FootPro CS also has antimicrobial properties and holds the copper sulfate in place. This is a great option, because the hoof wall is left intact. This helps maintain a stronger hoof capsule and doesn't freak the horse owner out by doing a hoof-wall resection. This can be a risky procedure if the entire cavity is not debrided. If you are not 100% certain that all leading edges have been exposed, I would choose to do a hoof-wall resection.

Larger cavities: Treating WLD on larger cavities can be challenging. Resection of the hoof wall is necessary to expose the leading edges of the WLD. After the hoof wall removal, structural integrity of the hoof capsule is compromised. The best antiseptic for WLD is air. Exposing the anaerobic fungus and bacteria to air stops it in its tracks. However, if there is a hidden fissure that was missed during debridement, the WLD will continue on its destructive path. Using a topical antiseptic, such as Plexus CS Gel, on the leading edge helps ensure the effective treatment of the WLD. The Plexus CS Gel wicks into the wall and white line crevices to kill any problematic microbes.



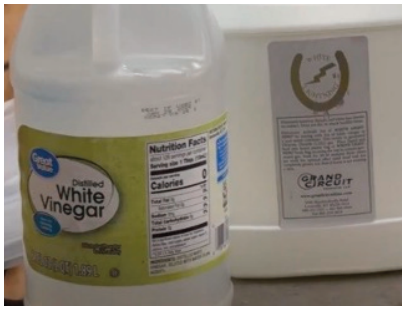
Half-round nippers used in resection and debridement of WLD cavity.

Topical treatments: Antiseptics play a critical role in managing white line disease (WLD), particularly when used in conjunction with mechanical debridement. One of the most effective topicals for treating larger WLD cavities is Plexus CS Gel. After hoof wall resection has exposed the leading edge of the infection, Plexus CS Gel is applied directly to these areas. Its formulation allows it to wick deeply into the hoof wall and white line crevices, delivering antimicrobial action directly to where fungi and anaerobic bacteria are actively colonizing. This targeted delivery helps halt microbial progression, even in hard-to-reach fissures that might have been missed during debridement.



Plexus CS Gel being applied to the leading edge of the WLD to disinfect any undiscovered fissures.

Whole-foot treatment: treatment with Grand Circuit's White Lightning is an excellent option for both treating and preventing white line disease, especially in cases where multiple cavities or extensive infection are present. When used in a gas form under a hoof soak or boot, White Lightning penetrates deeply into every nook, cranny and crevice of the hoof capsule, reaching and disinfecting areas that may not be visible during routine trimming or debridement. This allows for comprehensive antimicrobial action throughout



White Lightning mixed with vinegar works great to disinfect the entire foot.



A bag is used for the White Lightning/vinegar mixture for a thorough soak.

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the hoof, targeting hidden pockets of infection and reducing the risk of recurrence. When the full hoof is compromised or when isolated treatment isn't practical, this method ensures nothing is missed.

Hoof stabilization: When a significant portion of the hoof capsule - sometimes as much as two-thirds - must be resected to fully expose and treat white line disease, mechanical stabilization becomes just as critical as antimicrobial therapy. With much of the hoof wall compromised or removed, the structural support that normally bears the horse's weight is greatly diminished. Fortunately, the frog can naturally support up to one-third of the horse's weight, and this load-bearing capacity becomes essential during recovery. A well-fitted heart bar shoe is ideal in these cases, as it transfers weight-bearing responsibility to the frog while simultaneously offloading stress from the damaged or absent hoof wall. This redistribution of load helps maintain hoof function, prevents further mechanical distortion, and supports the regeneration of a stronger, more balanced hoof capsule. In combination with precise trimming and casting or composite materials when needed, heart bars provide vital stability to the weakened hoof wall.



A handmade heart bar shoe and Equi-Pak applied to a foot after a wall resection. The frog support and Equi-Pak aid in weight bearing after lost wall contact.



A preventer style medial branch helps ensure the shoe is not stepped on and pulled off.

While heart bar shoes offer excellent support for compromised hooves, they can present unique challenges - particularly when there is insufficient hoof wall remaining to securely anchor nails. In cases where large sections of the wall are missing due to resection, the farrier must balance the need for stability with the limitations of available structure. Additionally, achieving a precise fit becomes more difficult when the hoof capsule is asymmetrical or incomplete. Without proper coverage, parts of the heart bar or flat shoe may protrude beyond the margin of the foot, increasing the risk of the horse stepping on the shoe. In these scenarios, supplemental stabilization

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with casting tape can be invaluable, helping to hold the shoe in place and protect both the foot and the hardware during the early stages of healing.

FootPro casting tape offers an excellent solution for stabilizing compromised hoof wall affected by white line disease. When applied as a rim cast, it reinforces the hoof capsule and provides the structural support typically offered by the hoof wall - crucial when a large portion has been resected. This not only helps maintain the integrity of the hoof but also gives the farrier a reliable platform to attach a shoe when traditional nailing isn't possible. An essential part of using casting tape in these cases is leaving an open window at the affected area. Sealing in infection is counterproductive; the exposed window allows for daily treatment and promotes air circulation, which aids in drying and disinfecting the diseased white line. This approach strikes a balance between mechanical support and therapeutic access.



Everything needed on the Hoofjack table for easy reach. FootPro Cast and Vettec Adhere to build a rim cast on the compromised hoof wall.

FootPro Cast and Vettec Adhere are applied to stabilize the hoof capsule after resection. A window is cut into the WLD cavity for air exposure and the ability to treat affected area with Plexus CS Gel.

Prevention: Prevention of white line disease begins with vigilance during every trim or shoeing cycle. At each visit on WLD prone horses, the farrier should carefully inspect the white line for any signs of separation, cavities, or chalky, decaying material - early indicators of microbial invasion. When potential cavities are identified, they must be thoroughly debrided to remove compromised horn and expose clean, healthy tissue. I start by applying Plexus CS Gel directly into the cavity, allowing it to wick into the hoof wall and target hidden pathogens. After that, I pack the area with Allen's copper sulfate and FootPro CS clay. Whether applied under a shoe or to a bare foot, this combination offers both antimicrobial protection and a physical barrier, helping halt white line disease before a deeper or more extensive cavity can take hold. Consistent maintenance and early intervention are key to keeping the white line intact and the hoof strong. ■



The resected hoof wall prior to casting.





FootPro Cast applied with FootPro DIM 20 in the caudal half of the foot to provide additional support.





Kerckhaert DF is nailed to FootPro Cast with an aluminum plate. FootPro DIM 20 is applied under the plate for additional solar support.





Packing area with FootPro CS Plus and Allen's Blue Powder for WLD prevention.

TARIFF CLARITY?

LET'S JUST SAY THE TARIFF SITUATION IS STILL ABOUT AS CLEAR AS MUD! WE THOUGHT AN ARTICLE, TO SHARE OUR PERSPECTIVE ON WHERE WE ARE, MIGHT BE HELPFUL IN UNDERSTANDING THE PRESSURES OF THE TARIFFS ON THE FARRIER INDUSTRY.

All of the recent news has focused on "Reciprocal" tariffs that now seem to range from 10% to at least 50%, depending on country of origin. There is absolutely no consistency to the Reciprocal tariff levels. It's important to note these Reciprocal tariffs are not the ones creating the biggest impact on steel and aluminum horseshoes and nails. However, they do impact a wide variety of other items used in the farrier trade, including; tools, pads, hoof care products, and the bulk of the imported non-horseshoe and nail products that you may use in your work.

The more damaging tariffs for the farrier industry are the ones known as Section 301 and 232 (National Security?) tariffs. They are rarely mentioned in all the discussion about Reciprocal tariffs. At this time, steel and aluminum horseshoes and horseshoe nails from almost all countries are tagged with 50% or higher tariffs. Unfortunately, there is little to no public information as to whether these tariffs are going to be lowered or stick going forward. Just to provide some perspective, we've seen documentation through the years that shoes, nails and rasps are somewhere in the range of 75-85% of all products sold in the farrier industry.

FPD is in the same predicament as numerous other importers of farrier products.



Along with our key vendor, #Kerckhaert, we have absorbed significant costs of the tariffs despite applying some surcharges to help mitigate the impact on our ability to continue providing products needed to service the market. All the while, waiting and hoping we will eventually see the 301 and 232 tariffs reduced, so costs of the steel and aluminum products used every day in the farrier market do not have to increase, but can be reduced. However, Kerckhaert and FPD will not compromise their high standard for quality, regardless of the tariffs. Farriers can trust the products we carry in our program will continue to be reliable and available!

It is also noteworthy that even the domestic manufacturers, down to only one major steel shoe manufacturer and one rasp manufacturer, have seen their raw material costs increase as a result of the tariffs. No major aluminum shoe or horseshoe nail manufacturers remain in the US and, even if feasible, it could take years to change that dynamic.

Let's all hope for relief from tariffs. ■

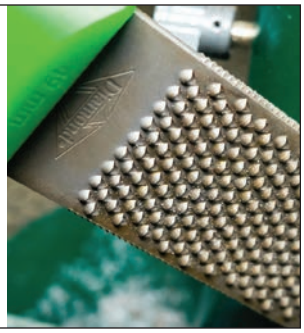
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PRO TIPS

Rock or Roll Shoe Modifications

by Dave Farley APF CF



There are times when improving breakover is helpful, beneficial or necessary. The three main reasons or factors I personally choose for one of the two modifications are conformation, footing and rider skills.

A conformational reason to choose either of these modifications would be a longer than normal pastern and/or negative palmar hoof angle (low heels).

Another reason is environmental issues. With the introduction of synthetic footings to the equine industry, traction of the horse's feet have increased tremendously. Some horses adjust quickly to synthetics while others have symptoms of stumbling and knuckling of the pasterns and or knees. In some instances, horses also experience these problems in the hind limbs. This stumbling or knuckling would be improved with the modifications.

Negative conformation and abrasive footings are enough reason for safety concerns. However, I occasionally choose these modifications for riders, especially amateurs who have a tendency to ride in a more forward position using the reins to balance and not sitting correctly. This too can cause a horse to stumble or trip, especially when the footing is abrasive.

These three reasons are important and after several applications (shoeing cycles) some weak, crushed or low heels may improve. If you find improvement in the heel quality or increased angle and

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NEW PRIME FIT
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improved hoof pastern alignment, you may be able to eliminate the modification and return to a normal shoe application.

When I'm asked to give a horse a little extra break over, I always start with a slight rolled toe, like the roll on the first pictures. If the rider then says that movement has improved, but didn't help or eliminate the stumbling, I roll the toe back further, as far as necessary. Sometimes back to the second nail hole.

There are times when you will need to consider a rocker toe first instead of a rolled toe.

(1) When there is extreme negative palmar angle and a long toe.

(2) A horse is bilaterally (both feet) stumbling.

(3) Lameness is diagnosed and you are included in the decision to rocker first instead of roll.

For all three of these instances to rocker, the horse's caretakers and riders should be advised to allow the horse ample time to adjust to the changes before returning to work.

A rocker toe is a way to increase break over as much as possible without squaring the toe. Although it is possible to square the toe and rocker it at the same time, I personally believe that "if" there is enough sole depth, one can rocker the toe back as far back as you can roll it. I do this modification in the extreme low negative angle conformation feet.

One other note - many times a rolled toe or rocker toe is applied to a hoof that has contracted or under-run heels. I always scotch the heels to encourage the heels to widen and/or correct the heel angle. ■



Rolled Toe before clean up.



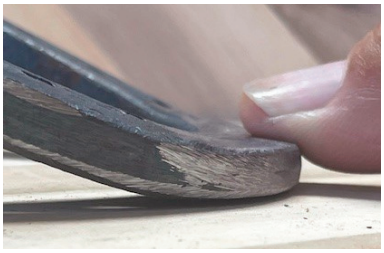
Lateral view of rolled toe.



Left: Slight roll/bevel put in with grinder.

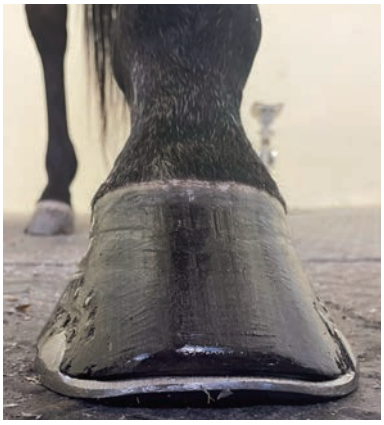
Below: Rocker Toe.





Above: Enhanced breakover of Rocker Toe.

Right: Rocker Toe on foot.



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Find These Quality Products at Montague Blacksmith Supply

Kerckhaert SX-10 Clipped



The first 10mm Clipped Kerckhaert shoe in a front and hind pattern not punched for E-head nails. Features a full, balanced toe, extra thickness, graduated widths and a 10 nail hole pattern. Fronts are quarter clipped and hinds are side clipped. This shoe is a great choice for farriers looking for additional strength, wear, nailing and modification options. Shoes are symmetrical.

FootPro Soft DIM 20



FootPro DIM Impression Material is a non-toxic, non-allergenic silicone that is hand mixed to a moldable consistency and applied to the bottom of the equine foot with a pad. SOFT DIM20 provides cushion for issues such as thin soles, sensitive frogs or situations where you want to give the horse something very soft to stand on.

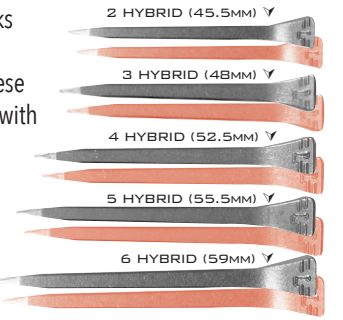
Kerckhaert Tradition 2mm Outer Rim



This 2mm Outer Rim is HISA Compliant on dirt and synthetic tracks, not compliant on turf. Special design of the heel provides good support and also aids in leveling the shoes. Race nails seat well in the 6 nail-hole pattern and are easily clinched, unlike the 4mm rims available in the past.

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