

# SOAK UP THIS IDEA FOR TREATING INFECTED HOOVES

**Brittle, weak hooves caused by infection can be successfully treated**

*By Nicholas B. Denson*

WORKING WITH A HORSE that can't keep its shoes on is something most farriers regularly deal with. Many times these horses have weak, brittle feet that easily chip and crack. Even if the hoof can hold nails, clinching often rips the nail through the wall providing little or no strength. If the horse pulls the shoes during turnout, you won't have to worry too much about working with hoof, because there won't be much left.

It is often thought that brittle, weak feet are strictly a nutritional or genetic defect. However, we often neglect to look into other causal factors, many of which are staring us right in the face.

## **Difficult Case**

Recently, I was presented with a Quarter Horse who — while exhibiting no severe angular and rotational deviations — suffered from very poor hoof quality.

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**INFECTION TAKING OVER.** Massachusetts farrier Nicholas Denson concluded that this brittle, weak front foot was under duress due to an infection.



**HINDS ARE NO BETTER.** The horse's hind feet were in just as bad of shape as the front.

developing a method to keep the shoes on his hooves.

First, causal factors for the poor hoof quality had to be evaluated. All parts of the stable to which this horse had access were neat and clean. Hunter and the other horses stabled there were well groomed. He had access to trace mineral blocks, unlimited water and was being fed adequately. Hunter was also being supplemented with Grand Hoof.

All of the other horses being stabled with Hunter (Morgan horses) showed excellent hoof quality and had been barefoot their entire lives. A previous farrier tried to leave Hunter barefoot with disastrous consequences (which also accounts for the old abscess tract).

Upon closer inspection, it became obvious that there was likely a bacteria or fungal infection at the center of the issue. While this barn was well-maintained, the owner said that the last barn Hunter had been at was not. Although that had been a year ago, it seemed likely the problem had originated there. It is often difficult to procure a detailed history of a horse's life, as many animals

The owner said that "Hunter" had never been able to keep his shoes on for an entire 6-week schedule. The hoof wall seemed very brittle, and in numerous places, the dorsal hoof wall was chipped and peeling proximally toward the hairline.

One hoof exhibited a wall defect, indicating that an abscess had broken out at the hairline about 6 months earlier. Hunter was a typical Quarter Horse, having a large body with tiny feet.

### **Leaving The Door Open To Infection**

Essentially, the foundation was not providing adequate support for the building. This can predispose the horse to certain hoof ailments and mechanical tearing of the laminae, which allows fungi and bacteria to enter into the stratum medium.

Once inside, these organisms multiply rapidly, further weakening the hoof and causing some discomfort. The discomfort can range from being not easily perceptible, all the way to three-legged lameness. Some horses are predisposed to infections and many suffer a good portion of their lives with this problem.

Many farriers and veterinarians merely accept the premise that a horse has weak feet resulting from breeding and that nothing can be done about it. I would venture that 60 percent of horses with "genetically weak feet" are actually afflicted with an infection, which means they can be treated.

### **Deciding On Treatment, Shoeing Method**

The challenge was to determine what treatment would best benefit Hunter, and

change owners, barns and nutritional programs. However, any information a farrier can obtain from the owner is a huge benefit when it comes to treatment.

The first step in treatment was to pull the three remaining shoes, which were aluminum St. Croix Eventers. The use of thin aluminum shoes on a horse with

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Hunter’s conformation is contraindicated, as more support and stabilization is required to provide a strong foundation. With his body-size-to-hoof-size ratio, a shoe that does not bend is essential, as there is a great transference of force to the hoof capsule.

Trimming Hunter was straightfor-



**SOAKING UP THE TREATMENT.** For infected hooves, Denson soaks the hooves in a solution made up of 1 cup White Lightning, 1 cup white vinegar and 1 gallon of water.

ward with no drastic changes being made to either shape or heel length. The next and most crucial step was to neutralize any active infection. This was done with Grand Circuit’s White Lightning, a chlorine dioxide in an aqueous base (water). One cup of White Lightning is mixed with an equal portion of acetic acid (white vinegar) and further diluted with 1 gallon of water to make the soaking solution.

It’s important to remove any parts of the hoof wall that are peeling or hanging prior to soaking. They are not structural or functional and these hanging pieces trap bacteria and provide an oxygen-free environment where anaerobic keratinolytic (hoof digesting) organisms procreate readily.

### **Starting The Soaking**

To begin this soaking process, obtain used IV bags from either a veterinarian or local equine veterinary clinic. Remember only to use IV bags that once held Lactated Ringers (saline) and never use an IV bag that held an antibiotic. There is a potential risk for an adverse reaction, which conceivably could lead to

anaphylaxis (shock).

Remove the end of the IV bag that has the spout by using a hoof knife or scissors. Next, slip this makeshift “boot” over the horse’s hoof. Having two people help during this process makes it go much more efficiently. Pour only enough White Lightning into the bag to cover the bottom of the hoof. Using more only wastes the product. Never let the solution rise higher than 1/2 inch above the ground surface of the hoof.

After pouring the solution into the IV bag, use white tape or duct tape to secure the bag around the fetlock. The thickness of the IV bag allows the horse to bear weight on the hoof and move around (a little) without tearing a hole in the bag. This lets you prepare the shoes while the hooves are soaking. Hunter pawed continuously with his right front leg, yet never dislodged the bag or ripped it open.

Sealing the bag around the fetlock allows vapors from the solution to penetrate up in the hoof wall, which is not possible if the horse is merely standing in a bucket. These vapors actively neutralize the fungi and are more effective than the solution itself. Be careful not to get any of the solution on your clothes, as it bleaches out some fabrics.

When the solution in the bag becomes dirty, empty and refill it with clean solution until it finally remains clear (about 15 minutes). It is also important to pick out and thoroughly brush the bottom of the hoof prior to soaking. This may sound obvious, but manure and shavings will instantly turn the solution black.



***DON'T COME OFF.*** Denson says *this horse pawed on the bags of solution but never detached them from the foot.*

One suggestion for cold-weather soaking is to mix the White Lightning and acetic acid mixture with warm water. On the day Hunter was soaked, the outside temperature was nearing minus 10 degrees. However, Hunter seemed to enjoy standing in the warm soak bag.

Once mixed, the solution remains active for only 12 hours (active time decreases as water temperature increases), so only mix as much as you

intend to use. You are not covering the entire hoof in the solution, so a little goes a long way. Adjust the mixture to suit your needs. When soaking all four hooves, the 1-gallon mixture should be more than ample. However, if only one hoof is to be soaked, mix a proportionally smaller amount of solution.

### **Why It Works**

Chlorine dioxide works by dissolving the biofilms (protective layer surrounding organisms), then it alters the pH, which thereby neutralizes the organism itself.

It is effective against fungi and bacteria, so it immediately destroys thrush. It also is a treatment for canker, white line disease and other hoof ailments. When the infection is highly advanced, you can often smell it, much like thrush. White Lightning breaks down the hydrogen-sulfur bond, which is where the putrid smell comes from. Do not be surprised if after the first soak the smell dissipates.



**CONTINUE TO CHANGE.** As soon as the solution in the bag becomes dirty, empty and refill it with clean solution.

### **Done Soaking, Now The Shoeing**

Hunter had originally been shod in aluminum shoes. The previous farrier

probably wanted to decrease weight with the hope of increasing the amount of time that the shoe remained on the hoof.

However, with such a poor quality hoof, that modality of shoeing is contraindicated because it allows for excessive expansion of the hoof capsule without providing the support of a steel shoe. Horses like Hunter must keep their feet as rigid as possible.

The first time I shod Hunter, I used Kerckhaert DF series shoes on the fronts and Kerckhaert PB Classics on the hinds. To further add rigidity to the hoof, the fronts were quarter-clipped and the hinds side-clipped. My suggestion is to keep the web of the horseshoe as narrow as possible and not to use sliding plates or any shoe with a web width that is more than 3/4 of an inch.

After shaping the shoe to the foot, hot fit the shoes. Hot fitting acts to create an environment in which bacteria and fungus won't thrive. Hot fitting is a must when dealing with bacteria and infection.

### **Nailing The Shoe**

Nail the shoe onto the hoof using no more than three nails per branch. Using more nails increases the damage to the already weakened hoof wall.

For Hunter, I nailed the shoes on with JC-1 nails. Since the shoes were set



**OUT WITH THE OLD.** (Top) The shoes once used on Hunter are wider than what Denson wants to use. (Bottom) The new shoes are narrower and only three nails per branch were used.



### **Paint It With Pine Tar**

It is advisable to paint the solar surface of the horseshoe with pine tar prior to nailing. Applying pine tar to the shoe with a disposable paint brush is preferred to painting it on the bottom of the hoof, as it makes for less mess.

It also keeps the product on the sole wall junction where it is most needed.

### **Keep Your Pads To Yourself**

Never use a full pad with a horse who may be exhibiting a possible bacterial or fungal wall infection. Even with the best of medicated hoof packings, there is always the risk that manure or urine could soak into or get under the pad or packing material, and further complicate the infection.

Only a rim pad should be used if a pad is needed. Since leather pads are treated with both anti-fungal and anti-bacterial agents during manufacture, they can safely be used, but only if the horse is to be reset within 4 weeks using new pads. A

**GETTING BETTER.** After going through the soaking process and getting a new shoe nailed on, Hunter's front foot is on its way to recovery.

back to provide caudal support to the hooves, the toe was beveled and rounded up. Nailing a horse like this can be a bit nerve racking as you'll undoubtedly have to nail high to find sound horn. And when it comes to clinching, do it sparingly.

There is no need for the "monster clinch." Keep it around 1 to 2 millimeters of nail to turn for the clinch. If the horse

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is going to pull the shoes, it is better to have it come off moderately clean, rather than tear off what is left of the hoof.

When pulling shoes on a horse with this condition, it is best to pull each nail individually using crease nail pullers, as prying the shoe off the foot can cause damage. The JC-1 nail is extremely easy to pull and I do not recommend using a city or regular head nail on these problem horses.

synthetic rim pad, such as the ShockTamer, should be used over longer time periods. If synthetic pads are to be used, rinse them with White Lightning prior to resetting to make sure you aren't reintroducing any infectious material to the hoof.

### **Don't Forget The Wax**

Upon finishing the hooves, apply some type of wax in the both the old nails holes as well as over the new clinches. Use an antiseptic wax because beeswax cannot be spread easily.

After waxing over the nail holes, new clinches and any other defect that might trap fungi and bacteria, paint the dorsal hoof wall with a hoof antiseptic such as Keratex's Hoof Antiseptic, Farrier's Formula Hoof Antiseptic or Vapco's Bear-Cat Hoof dressing.

The owner should continue to apply the hoof dressing three times a week for the first shoeing period, then on a reduced rate, which the farrier should determine at the next appointment. Do not expect to see drastic quality changes until you've done about three shoeings,



**HINDS RECOVERING.** Hunter's hind foot also is doing better after going through a treatment soak and shoeing.

but even if the hoof changes for the better sooner, do not alter the shoeing regimen for at least three shoeings.

### **On The Road To Recovery**

A week after Hunter was shod, the owner called to inform me that Hunter had been running around and bucking in the paddock like he was a colt again.

Though he did not appear to be markedly lame prior to soaking and shoeing, he obviously felt much better after treatment. In the process of running around and overexerting himself, Hunter managed to do some damage to his deep digital flexor tendon and needed to be placed on stall rest. I'd suggest limited turnout for a few days so you don't run into the same problem.



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