Dealing With Wet Feet

Wet seasons or wet climates can present challenges in hoof care and health. The horse’s foot can function more normally in relatively dry conditions than when constantly wet. Since we can’t control the weather, what can we do about hooves during muddy, rainy conditions?

Dr. Scott Morrison of Rood & Riddle Equine Hospital near Lexington is a farrier and a veterinarian. When the hoof wall is dry it is stronger, he said—more resilient and less prone to deformity.

“It’s similar to a cardboard box,” he explained. “If it’s dry, it can bear weight, but when it’s wet, it tends to collapse.”

Horses from the arid west that are moved to the East tend to develop hoof problems just because of the change in moisture levels. Feet become dishy, with flares and flat soles because the wet hoof wall deforms more.

“Feet need a balance between wet and dry,” Morrison said. “If they are too dry, they become brittle and crack. If they are too wet, they deform and collapse. They need proper moisture content. Generally, however, they do better under drier conditions.”

Hydration and Exercise

The hoof wall is made of horn tubules tightly packed together. Keratin protein molecules that make up these tubules have...
a strong, rigid structure. But when the hoof is saturated with water, horn tissue becomes swollen and soft. The swelling stretches the bonds that hold the hoof tubules together and allows even more moisture into the tissues.

Mitch Taylor, director of Kentucky Horseshoeing School at Mt. Eden, Ky., also says horses’ feet do best in an arid environment.

“The hoof horn is designed to have a certain hydration level,” Taylor said. “It responds well to concussion, like bone does, in that it becomes harder and more dense and callouses up very nicely. It can’t do this when it’s constantly wet. We see more problems when feet are wet and soft. The horse has less stone bruising, abscesses, or thrush when feet are hard and dry. We see less incidence of separation between the hoof wall and white line in dry hooves.”

Horses in much of the East must deal with constant moisture.

“Even if it doesn’t rain, humidity is high and there’s dew on the grass every morning,” Taylor said. “The hoof is a lot like a sponge in that it absorbs moisture and gets softer. The hoof wall and sole become less able to bear weight and the wall starts flaring.”

If a horse is overweight, this accentuates the problem.

Racehorses have special problems. “The practice of applying mud and poultices to the feet at night is not always a good idea,” Morrison said. “The feet are already shod with poor support and horses are confined in stalls without the continual movement that keeps hoof circulation healthy. The hoof capsule does not become as strong as that of a horse outside and exercising all the time. The hoof wall and laminae are weaker in a confined horse. If this situation is combined with using poultices and keeping mud on the feet (which holds in moisture), this is part of the reason we see so many heels collapse.”

Morrison noted that the foot needs to be stimulated with proper weight bearing and exercise. Long-term, low-magnitude loading of the foot causes it to deform more readily than does high-impact loading. A healthy hoof can withstand concussion.

“Standing in wet conditions causes more damage to the hoof capsule than does strenuous exercise; the latter is healthy for the foot,” Morrison said. “When a horse is running, the foot fills with blood at each step. Fluid volume inside the foot helps support some of the structures.”

Wet feet can cause serious trouble if a horse has less-than-ideal conformation and uneven stresses on the feet, according to Taylor. If a horse is base-narrow and toed-out, for instance, most of the weight

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is borne on the inside heel quarter, which can result in a sheared heel. As the foot starts to warp because the horn is soft, the inside heel begins to jam upward, compromising the circulation of the coronary band in that area, stretching the connection of the capsule, and tearing the central sulcus of the frog a little,” Taylor explained. “The inside heel is higher than the outside. When the tissues tear, they can become infected, and this infection may go deep into the tissues.”

**DISEASES IN WET FEET**

Wet conditions make the hoof more vulnerable to infections such as thrush, canker, and white line disease. “In many feet we must deal with opportunistic pathogens from the soil that get established in the hoof,” Taylor said. “There’s a much higher population of bacteria, yeasts, and fungi in wet soil because they thrive in warm, wet conditions.”

Thrush can be prevented by keeping feet clean and dry. The organisms that cause thrush thrive in dark, moist conditions, such as a hoof packed with mud and manure; infection usually starts around the clefts of the frog.

“We see white line disease in both dry and wet conditions, whenever the hoof capsule is compromised,” Morrison said. “The fungus is everywhere, but seems to just invade weak...
areas of the hoof wall, such as where there’s a flare, or where the hoof is deformed or dished. When conditions are wet, the hoof deforms more, and opportunistic pathogens can become established.”

If the hoof is saturated, tissues are soft and swollen. “The hoof is not as tight and upright and starts to flare,” Taylor explained. “When this happens, the wall and sole separate in the white line area. This opens up the bottom of the foot and a lot of organisms start living in there.”

There are some good products on the market that are very effective for killing the pathogens that cause white line disease and thrush.

“An oxychlorosene product works well as a topical anti-infective, containing a hypochlorous acid complex that has actions similar to that of chlorine,” Morrison said. “There are two companies that market these products, one of which is called Clean Trax and another is called White Lightning. Both of these are very effective at penetrating the hoof capsule and killing the fungus that causes white line disease, or the bacteria that cause thrush. They can be used as a once-a-week soak or at each shoeing. The medication tends to be more effective with the shoe off, so I advise people to do it when the farrier pulls the shoes. They can soak the horse while the farrier works with other horses; then he can come back around and finish that horse when it’s done soaking.”

Morrison said these products can be used preventively, “but we just use them on horses when we see signs of white line disease developing. Having a good farrier who can detect early signs is important—before there’s much wall damage. It’s easy to stop if you can catch it early.”

**BRUISING**

Soles tend to become thinner and weaker when they’re constantly wet. When a sole is thin and pitted from being soft, it becomes more susceptible to puncture or bruising. A severe bruise can abscess if pathogens gain access to the bruised tissue.

“The sole is an important supporting structure of the foot, like a big arch,” Morrison said. “When it’s dry, that arch is strong and resilient. When it’s wet, it sags down and the horse has a flat sole, which is more readily bruised. Not only is the sole wetter and softer, but the weight of the horse on the wet hoof capsule causes it to collapse and flatten out.

“When horses start to get flatter feet, soles get thinner,” said Taylor. “Since ev-
everything is softer, the thin sole is less able to deal with bruising, and we see a lot more abscesses, along with flares, tears, and wall separations.”

If a horse does bruise and abscess, traditional treatments—opening the abscess to drain, flushing it out, and soaking the foot until healing begins—are still the best. Get immediate attention from your vet or farrier to resolve it quickly and give the opened area protection and support.

“A mixture of Epsom salts and DMSO can help a horse that’s bruised; it pulls the inflammation out of the sole and helps dry up the feet,” Morrison said. He noted that with thin-soled horses, he also will try to help the sole become thicker.

“There are many ways to accomplish this,” he said. “Easing breakover (using a rolled toe on the shoe or racing plate) takes a lot of stress off the hoof capsule and helps get rid of flares and dishes, as well as promoting sole growth and thickening of sole depth. Moving the breakover back helps promote sole callous formation and increases sole thickness. A long toe leads to further capsule deformity and thin soles because it puts more stress on the hoof; a shorter toe is always helpful.”

TRIMMING AND SHOEING

A wet hoof can’t handle being long, said Taylor. “When a wet foot gets a little long and out of balance, it starts to cave in or flare out,” he explained. “Thus, regular hoof care is imperative. When the hoof capsule is soft and spreads out, the sensitive tissues inside also tend to spread. It’s harder to nail shoes on because the walls are so thin and the hoof capsule so flexible. It’s also easier for a horse to pull a shoe off.”

Taylor likes to “hot fit” shoes, meaning putting the hot shoe against the hoof wall and cauterizing the ends of the tubules. “This helps seal the tubules you’ve just trimmed and opened up at the bottom of the foot,” he said. “If you hot seat the shoe, it tends to sear and seal the bottom of the wall so it won’t wick up any more moisture for a while. The heat also kills any pathogens on the surface that might cause problems.”

The key to keeping a shoe on a wet, compromised hoof, Taylor said, is not to add more nails, but fewer—using clips if necessary to help hold the shoe on. If a foot is really bad, Taylor may glue a shoe on for a time or two, letting the hoof wall heal and regain some integrity. He also uses fewer (maybe four instead of six or seven) and thinner nails. In a soft wall, he said, the

If a hoof is saturated, tissues can become soft and swollen.
larger the nail, the more damage it will do.

“Often we pitch the nails a little more, having them come out higher in a flared wall,” Taylor said. “This makes a safer nail that is less likely to tear out through the wall.

“Wet soft feet also settle a lot,” added Taylor. “When you trim a long, unbalanced foot, you have to be careful. The foot might look level and balanced, in line with the bony column of the leg, right after I trim it. But after I put it down and let the horse bear weight on it a while (as I go back to the anvil or do something with a shoe or work on another horse) and come back to that foot, it may have settled and is no longer balanced. Since it’s so soft, it may drop down and be high on the inside again, for instance. So you have to re-rasp and re-balance it.”

Thus a farrier must be careful not to overtrim in case a foot must be rebalanced.

“The hoof is not just a cone in which the horse’s weight is pushing down on the outside,” he said. “The bone is hooked on the inside. When the bone is pushing down from the inside, this pressure can warp, bend, and move the soft capsule. You have to take that downward pressure (from inside) into consideration. It’s a tricky balance, especially on a horse that works hard for a living.”

There are a lot of secondary problems...
that come with wet conditions. Morrison noted the typical Thoroughbred foot is a little thinner-soled than some other breeds, with lower heels, and the foot might be a little flatter already. “If these feet aren’t trimmed as often as they should be and become unbalanced due to long toes, the wet conditions create more problems,” he said.

Broodmares out at pasture might not get trimmed often enough, and when the farrier comes, the feet are flared. The farrier then has to correct the flares.

“He might use a four-point trim or trim the toes more,” said Taylor. “Since feet are soft, there might be some wall separation in the white line; as they flare, they pull the wall away from the white line, which creates more flare. So the farrier must deal with the flare and trim the foot into the hoof wall and horn tubules more than he would otherwise. When we chronically keep rasping the feet, not allowing the natural hoof ‘varnish’ to come back, this opens the way for pathogens to enter the tissue you just rasped. You keep breaking the protective covering.”

Taylor said it’s better to keep the foot in balance with more frequent trimming or shoeing rather than having to correct the flares (taking more wall off).

“It’s really important, in this part of the country (Kentucky) to put a significant ‘ pasture roll’ on bare feet,” Taylor advised. “If the bottom of the hoof wall is smooth and rolled, it won’t catch, chip, and break.”

A smooth, rolled wall will also have more strength. If the foot can hold its shape (with more regular care), the farrier won’t have to do so much rasping to try to get it back in shape.

**CARE AND MANAGEMENT OF WET FEET**

Feet should be cleaned daily and trimmed often. In a dry environment, you might be able to let the horse go longer between trims (taking off a half-inch or more of growth each time) and still have straight walls. But in wet conditions, by the time the hoof wall is even a quarter-inch too long, it might start bending and flaring, said Taylor.

Keep the feet as dry as possible, which means the driest footing available, and minimal bathing of the horse. If pastures or paddocks are wet, with no dry places where the horse can stand, it’s nice to have a stall with dry bedding. “This can give the feet a break so they can dry out for a while,” Taylor said.

With racehorses that have flat, deformed feet, Morrison thinks mudding and poultices at night are counterproductive. He suggested drying them instead.

“Picking out the feet often and standing them in dry bedding can help,” suggested Morrison. “At the racetrack, a lot of people use straw, which is good if it’s dry, but it doesn’t give much support to the foot overnight. You want something that’s dry and also packs into the foot to give arch support. Sawdust is better than straw, as is dry dirt or sand.”

Many people worry about sand colic (the horse ingesting sand), but this footing is ideal for feet. If the horse with soft feet is standing around with no arch support (the hoof supported/suspended just by the perimeter of the wall), this can lead to collapse of the foot.

“At the track, if horses are bedded on straw, it’s a good idea to use orthotic inserts (sole supports) overnight,” said Morrison. “We custom make these for clients, made individually for each hoof, but it’s hard to get people to use them. They should be put in every night and pulled out in the morning when the horse is exercised. You don’t run a horse with the sole supports because they decrease traction.”

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