

Shelly Feet

Brittle, shelly feet need good management and care

By Christy West

There's no getting around it—Thoroughbreds just aren't known for having the toughest feet in the equine world. They've got all the class, style, beauty, and speed one could ask for in a horse, but how do you go about getting those often brittle, shelly feet to finish out that perfect image?

Many things affect the condition of a horse's feet, including genetics, nutrition, environment, farriery, and use of the horse. Alluding to the first-mentioned, Joe Ramsey, farm manager at Hill 'n' Dale Farms for the last 10 years, commented: "We don't breed Thoroughbreds for good feet, unfortunately. We breed for speed and precocity, and we just have to deal with whatever feet the good Lord gives them."

WHAT IS A SHELLY FOOT?

"The typical characteristics are chipped, crumbly walls that are usually flared at the toe or sides," said veterinarian Dr. Bruce Lyle, who focuses primarily on equine podiatry in Aubrey, Texas. "The shelly foot is quite often a long foot relative to the coffin bone, and the wall bears more weight than it's capable of at that distance from the coffin bone. Think of it like a long fingernail; the farther it is from the nail bed, the weaker it will be and the more it breaks up with or without a shoe.

"In some instances, you can fix that foot real quick with a good trim if it's just a matter of too much wall length (which you can tell on an X-ray or radiograph)," said Lyle. "If the feet are shelly and short (chronic shelly feet), there's probably a circulatory (blood vessel) disturbance (such as compression from imbalance). Pain, abscesses, and white line disease can result."

Veterinarian/farrier Dr. Ric Redden of Versailles, Ky., founder of the International Equine Podiatry Center, added, "If we want to know what's happening to that chronically shelly foot, we have to look inside. Where is the seat of the problem? It's not in the hoof capsule; that's the end result. First the circulation under the coffin bone is compressed (due to imbalance or lack of protection from the combination of overtrimming, excessive wear, and slow growth); then the sole all but stops growing; then the walls get thin and shelly. It's a 1-2-3 formula.

"A horse needs 10 mm of sole to have healthy circulation under his coffin bone plus at least 5 mm of sole to protect that circulation," he explained. "The solar papillae (tiny hairlike blood vessels that project down into the sole) are short to nonexistent in the compressed, shelly foot. That's why the sole doesn't grow; it doesn't have an adequate blood supply. When the sole is not growing at a healthy rate, the entire hoof capsule changes rapidly; you begin seeing an underrun heel, followed by the thin walls, and the vicious cycle begins. The athlete might be training well, but the foot is going in the opposite direction.

"The healthy Thoroughbred foot will have a sole that's at least 15 mm thick and walls that are one-quarter of an inch to one-half of an inch thick," he said. "The palmar angle (angle the wings of the coffin bone make with the ground) is around two to three degrees (heels slightly higher than toe). The shelly foot will have a very thin sole (4-10 mm on the average racehorse) and will have very thin walls because of that. Palmar angle will often be zero or negative (toe higher than heels). We have to have radiographs—special views taken to show soft tissue detail—to understand what's happening inside."

Dealing with shelly feet involves a combination of proper diet, management, and farriery. We'll look at all three.

FOOT FOOD

Ramsey's first defense against health problems, including brittle feet, in the 300-plus horses at Hill 'n' Dale is nutritional. "One of the most important things is a high-quality ration," he said. "We feed a well-designed ration that was made for this area. Local feed companies are very in tune with the needs of area farms and have top-class professionals that design their feeds and keep up with what's needed. We also feed biotin (which has been proven to increase hoof growth rate and quality), but I don't really believe a horse needs biotin if he's a normal, healthy horse.

"Out of about 300 mares, there are probably a half-dozen that have what I'd describe as shelly, dry, brittle feet," Ramsey said. "It seems to be more common in older mares. But in most cases, if we keep them on a well-balanced ration, the feet take care of themselves."

MANAGEMENT/ENVIRONMENT

Several management and environmental factors can help or hinder shelly feet.

- Too much moisture can soften the feet too much; avoid very wet conditions for prolonged periods, said Lyle. He suggested keeping feet dry whenever possible, such as by protecting feet with plastic bags during baths or sponging the horse instead of hosing him.
- Too little moisture can result in feet that chip and crack, he added.
- Cycling between wet and dry conditions can be the worst thing for a horse's hooves, said Ramsey.
- Keeping stalls clean and dry is important, said Lyle. One study found that poor-quality hoof wall left in feces for two weeks literally disintegrated, and a healthy wall was also severely affected. Urine-soaked straw, shavings, or clay not removed at least daily from a stall keeps the foot in a stressful environment.
- Radiographing problem feet will help the farrier see where the wall is relative to the internal structures of the foot and allow for a better job complementing the internal anatomy and conformation along with the wall, sole, and shoe, said Lyle.
- Manage horses as individuals, emphasized Ramsey. "If we're addressing a specific problem with a specific horse, we might do something different on their schedule (like turnout only when the grass is dry)," he explained.

FARRIERY

"The level of farrier care in our area and in most horse-dense areas is extremely high. Even so, there are cases where shelly feet are the result of farriery that doesn't suit that particular horse," noted Lyle. "It might be very good shoeing, but just not for that horse or foot. Hoof balance takes on a whole new meaning when assessing what components are being used too much, or not enough."

To fix shelly feet, most people just want something to feed the horse or paint on his foot, but "consistent, proper hoof care is what shelly feet need," stated Redden.

That means evaluating the condition of the feet with radiographs and venograms (specialized radiographs of the feet to see the blood supply), understanding the imbalanced forces within the feet, and developing a trimming/ shoeing plan to get those forces back in balance and grow a healthy foot.

The main things to look for on a radiograph are sole depth, palmar angle, and digital breakover (the horizontal distance between the tip of the coffin bone and the forwardmost point of the foot/shoe touching the ground on a hard surface—the breakover point), said Redden. Soles can be thin because of extremely slow growth due to overtrimming/excessive wear or imbalance, such as when the palmar angle is lower than it should be due to heel crushing. Tension on the deep digital flexor tendon running down the back of the leg and attaching to the bottom of the coffin bone is increased, which pulls the bone down tight to the sole. This crushes the blood supply, beginning the vicious cycle.

“Use these parameters to enhance the healing environment,” Redden advised. “It’s very important for today’s farrier looking after these top-quality racehorses and broodstock to become familiar with reading and interpreting soft tissue detail radiographs, because his job greatly influences sole depth, palmar angle, and breakover at every single trim and shoeing.”

He noted that often a shelly foot is trimmed and rasped down so it looks healthier, but this is “one of the biggest problems I see worldwide. If you clean it up, it will look better, but it won’t be stronger when you are done—it will be weaker because you’ve taken away foot the horse can’t afford to lose. You don’t make a foot grow with a rasp. Remove only what the foot does not need to stay healthy, and always remember sole is required.”

It goes almost without saying that these brittle feet need close monitoring so they don’t get away from you.

“We trim every month; we try to keep a good, balanced foot and stay in front of any problems that would make us have to do more,” said Ramsey.

Redden said it’s essential to monitor internal balance to prevent and treat shelly feet. “There’s not a trainer in the world who won’t tell you, ‘If I could get rid of my foot problems, training would go a lot easier.’ It’s a major concern because they know problems are just around the corner even on their best horses, but it doesn’t have to be that way. Monitor internal balance so you can prevent problems rather than waiting for them to occur and then scrambling for a fix.”

What about rebuilding a brittle foot with a composite, or gluing on shoes? That’s an option, said Redden, but patching the wall doesn’t go very far toward making the foot healthier if you haven’t addressed the mechanics. Also, he warned that in humid climates, this can actually make the problem worse.

“If you’re where we are (Central Kentucky), where the humidity matches the temperature in summer, you can just ruin a foot from locking in moisture (with a composite),” he cautioned. “The wall becomes very waterlogged. People in low-humidity areas don’t know what you’re talking about when you say Equilox can sweat a foot, but in the South, if you use a lot of it, you might end up with less foot than when you started.”

Proper trimming might be all some horses need, but shoeing these horses raises a few additional concerns. “A race plate has a narrow web that’s usually fit to the perimeter of the foot and often nailed thinly (the nails are very shallow),” said Lyle. “A race plate is such a thin piece of metal that, especially when it’s nailed thin and the horse is working at speed, it puts a lot of stress on the very outer edge of the wall. If the foot is not trimmed enough (and there’s a fine balance between trimming enough and too much, he noted), often the horse is nailed thin and the walls start breaking up. The strongest part of the wall is near the sole-wall junction, but if you’ve got no sole depth, you’ve got very little to nail into. You’re faced with crumbly walls or nails driven next to, or into, meat, not horn. Neither is a good deal!”

In other words, you want maximum sole depth, but you don’t want long, weak walls that flare away from the coffin bone, creating levers the wall and upper leg have to work against.

Can using pads help by cushioning those feet? Pads can help and hurt, said Lyle— they can dampen vibration, which is good, but they can also lock in moisture, which is bad.

WHAT ABOUT HOOF DRESSINGS?

Scores of hoof dressings claim to strengthen feet, but many experts warn that caution is due. Studies have shown some dressings did more harm than good—and the ill effects were more pronounced on brittle hoof horn. (For more information, see “Hoof Dressings: What Studies Show,” www.TheHorse.com/ViewArticle.aspx?id=3840.)

One product Lyle has found useful is Keratex Hoof Hardener; he told the story of using it on one side of a competitive event horse with very brittle feet. “Six weeks later, the shoes on the Keratex side were still on, while on the other side each foot had gone through a reset. That product has sold itself for me for years.”

TAKE-HOME MESSAGE

Some horses have tough feet you “can’t hurt with a running chainsaw,” just as others are genetically predisposed to have brittle feet. Between are horses that develop brittle feet when management doesn’t stay ahead of foot stresses. If your horse falls into one of the latter two categories, he’ll need a multifaceted treatment scheme—including proper diet, management, and hoof care— to keep his feet as healthy as they should be on a blue-blooded racehorse.