



# HEALTH ZONE

## Lameness

### Sole Bruises

BY HEATHER SMITH THOMAS

**TRAUMA TO INNER TISSUES** of the foot beneath the horny sole can rupture small blood vessels, creating a bruise. When a horse steps on something hard and sharp (gravel, rocks, uneven footing on ice, etc.), the crushing of blood vessels between the sole and coffin bone causes bleeding—and pressure buildup can create a lot of pain. The horse may be reluctant to put weight on the foot.

A mild bruise may merely produce tenderness; the horse may travel sound on soft ground but “gimp” on gravel or rocks. Hard surfaces put more pressure on the sore spot. A mild sole bruise may simply make a horse short-striding or stumbling in his efforts to walk more lightly on the sore foot. The bruise may heal on its own, with time, or become worse if he continues to strike the sore area on rocks or gravel.

A heel bruise makes the horse put more weight on the toe, favoring the sore heel. When standing, he may try to rest the foot with the knee forward to decrease heel pressure. A horse with a bruise in the toe area will land on the heel. Hoof testers can

### Prevention and Treatment

help with locating the bruise; the horse will flinch when the bruised area is pressed.

Dr. Julie Bullock, a veterinarian in Virginia who has a special interest in podiatry, says it's misleading calling these injuries stone bruises, because there are other causes.

“In winter I see bruises due to frozen ground or ice,” she said. “When mud freezes there are lumps and bumps, and these can cause bruising if the horse steps

wrong. Many people leave a retired horse or broodmare barefoot for winter but trim the feet short and don't allow time for the sole to toughen up before the ground freezes, or don't leave enough foot to protect it from sharp ice and frozen lumps.”

The horse may become tender-footed just walking around on frozen mud or ice.

“To combat mud around the barnyard, people often haul in gravel or stone dust,” she said. “If any thin-soled or flat-footed horses are barefoot walking on gravel, they may bruise. Those individuals do best if you leave front shoes on for winter, to get those feet up off the ground a little to prevent bruising.”

The foot is a living, flexible structure. Sole and wall have some give, to expand and contract. The hoof is well designed to withstand the concussion and trauma, but it can be injured by too much impact. Uneven landing patterns, too-tall heels, or too long between shoeing cycles can lead to corns, which are painful and can also abscess.

Some horses have a strong, robust foot and can withstand a lot of trauma, while others are more vulnerable.

“Structural strength is partly due to genetics (some horses have much stronger feet than others), and partly due to environment,” she said. “Horses in dry conditions have much harder feet (less likely to bruise), compared to horses in a wetter environment with softer soles and walls.”

You need to know your horse and the environment to know if the foot needs extra protection.

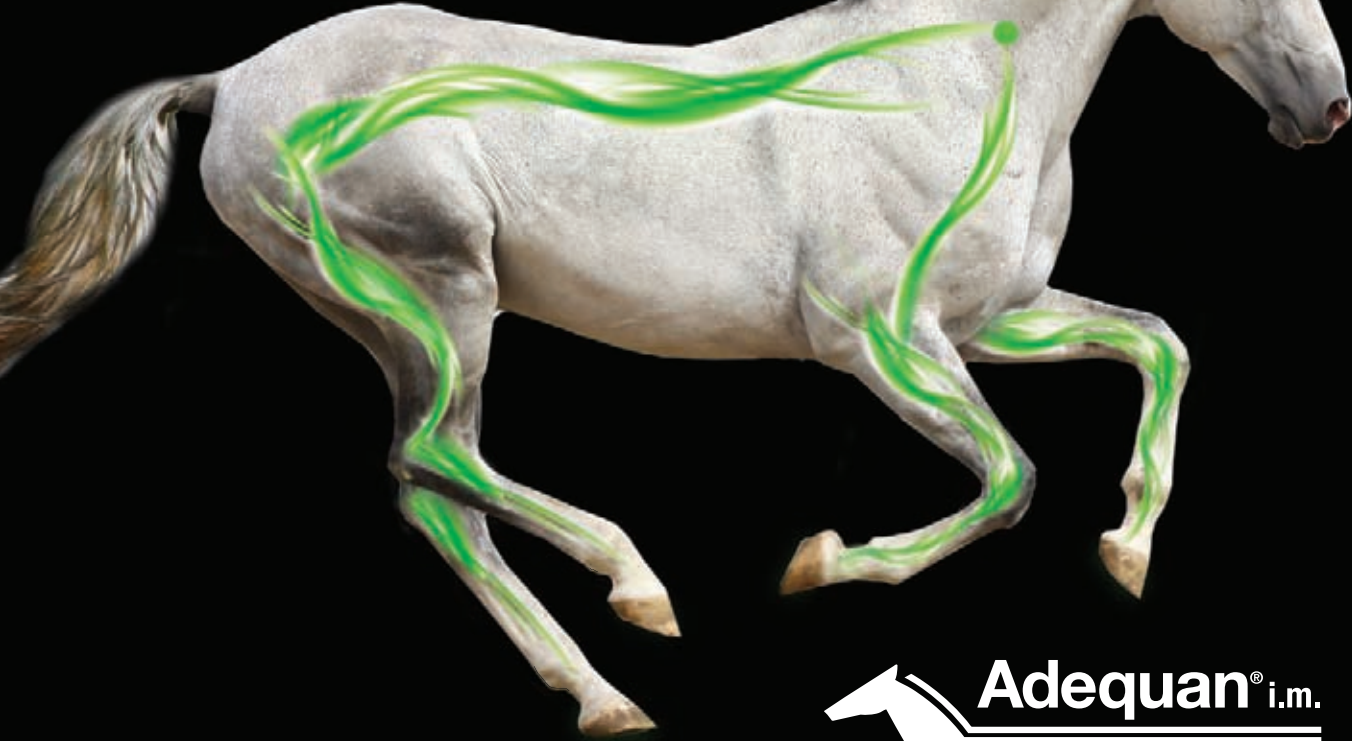
“Several structures of the foot can become bruised (including the frog and bars), and not just the sole,” Bullock said. “Bruising of the solar corium may or may not become an abscess. Some horses will actually bruise the coffin bone. A deep bruise in bony structure will take much longer to

*(continued on page 88)*



COURTESY DR. JULIE BULLOCK

Close up of a bruised sole



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heal and for the horse to become comfortable again. If the horse is lame for an extended period, or acutely lame and it's not an abscess, consider the possibility of a coffin bone fracture or bruise. Don't just assume it's an abscessed bruise, even though it will look similar for a while. Those are sneaky because you can radiograph the foot and miss it, then radiograph it again 10 days later and find a fracture line. Frozen or rocky ground may cause a coffin bone fracture as well as bruises."

Paul Goodness, Chief of Farrier Services at Virginia Tech's Equine Medical Center in Leesburg, Va., said bruises of all kinds can show up on the bottom of the foot.

"We see this quite a bit on the East Coast and it's more prevalent in wet weather because the foot is softer and the sole tends to thin a bit and is not as strong," he said. "Also the ground is softer and the hoof sinks farther in—and may encounter a rock. We tend to see more bruises during late winter and spring.

"Sometimes the bruise creates an abscess, but usually it's just a sore spot on the bottom of the hoof that lasts a week or so," Goodness continued. "Depending on what the horse is doing and the environment he's in, we may elect to change the type of shoe to protect the foot more so the horse can

travel sound. Today there are dozens of options in terms of shoes, pads, or hoof boots for hoof protection."

#### PREVENTION

To avoid bruising for flat-footed horses or horses with thin soles, Bullock recommends keeping shoes on year round and sometimes using hoof pads or pour-in pads.

"Depending on terrain and footing, you can be proactive in protecting the feet so they don't develop a bruise," she said.

If the horse has been living in a soft pasture and then has to travel through rocks or gravel, the feet may bruise.

"There are many types of shoes and boots that can help protect the feet," Bullock said. "There are some shoes that cover most of the foot, and many kinds of hoof pads that can be used in conjunction with a shoe."

The way a horse's feet are trimmed when barefoot can also make a difference in whether they are vulnerable to bruising. If the foot is trimmed down uniformly to create a flat surface—as for putting on another shoe—this doesn't leave much protection. It's best to leave some hoof wall, especially at the toe and heels, so the sole isn't right down on the ground. Smoothing the edge of the hoof wall with a rasp may be all that's needed, so it's less likely to chip and crack.

"There's a trim for shoeing, and there's

a barefoot trim that leaves more foot, with more concavity on the bottom because you've left a little more wall," Bullock explained. "If you've pulled the shoes and want to leave the horse barefoot, you must trim the foot in a different way than if you were going to put a shoe back on."

Even if a horse is shod and wearing pads, there's no guarantee he'll never bruise.

"I have seen horses step on rocks and become sore. In one instance a rock punched a hole through the plastic hoof pad and put a dent in the sole," she said.

"There are many ways to protect the foot," Goodness said. "One is to simply get it higher up off the ground. Another is to provide protective covering over a bruised spot, with a wider webbed shoe. A cushioning pad or some sole support material can be helpful. Often when you use some kind of protection like a pad or some sole support, this helps thicken the sole just because it is covered and protected from wear. This allows it to grow thicker. The more natural protection between the ground and the foot, the better.

"An interesting thing I've found over the years is that the sole—like any other part of the horse—is genetically programmed to be capable of only certain things," he said. "Some horses can't grow a thick sole, no matter how you protect it. If that individual horse has a sole that's only going to be 1.5 centimeters thick, you can't make it thicker."

Some horses have thin, weak soles and are easily bruised whereas other horses have such thick, tough soles that they can run through the rocks and rarely have a problem.

If you have a thin-soled horse or a flat-footed horse, you need to think about protection, and ways to prevent sole bruising. You might use hoof pads, or special shoes. If the horse is barefoot, you might try iodine or a commercial sole-toughening product.

"We believe that this helps," Goodness said. "Essentially these are chemicals that dry the sole, and keep it from becoming soft. This may be beneficial for some horses to periodically paint this over the sole."

In some cases, however, you'll have to utilize some kind of pad.

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“This doesn’t work for all horses,” he said. “Some don’t want anything on the bottom of their feet; they won’t perform as well. There is a lot of difference among horses regarding what they perceive as support and what they perceive as pressure. I’ve had several horses that were a challenge because they were top-of-their game international athletes but didn’t accept any help in terms of hoof pads. They could only tolerate minimal shoes.”

You have to know your horse and what you can do or not do for giving him optimum help.



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### TREATMENT

A mild bruise generally needs time, with no more trauma to that tender area. The horse will be fine on soft bedding in a stall or turned out in a soft pen or pasture for a week or more. A more severe bruise takes longer. If it abscesses, the horse will be severely lame and the abscess needs attention.

“The abscess may need to come out the bottom of the foot; you can use hoof testers to find out exactly where it is,” Bullock said. “Then you can make a very small hole to create drainage (to get rid of the buildup of serum or pus) and relieve the pressure that’s causing severe pain. People often use

soaking or a poultice to help draw out the infection.”

Soaking with Epsom salts 30 minutes once a day (until the infection is cleared up) is a traditional treatment that works.

“A cup of Epsom salts per gallon of hot water is standard. Soaking can be a chore and a lot of horses won’t stand with their foot in a tub or bucket and you have to use a soaking boot or an overnight poultice,” Bullock said. “A good recipe for a poultice includes bran, Epsom salts, betadine, and DMSO.”

This will soften the foot to help the abscess come to the surface or make it easier to find and open with a small curette or hoof knife, and the DMSO reduces inflammation.

“Sugardine—a mixture of sugar and betadine—also works well, once you have established drainage,” Bullock said. “You mix this into a paste and put it into the hole and

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bandage over it. This is an excellent drawing agent. Another good one is Animalintex. There are many products available to draw out pain and inflammation and numerous kinds of poultices.

“The tricky part is knowing when a bruise has become an abscess that can be drained. A bruise can produce the same signs as an abscess but there’s nothing to drain. Another thing that can happen is the abscess decides to go north instead of south and pops out at the coronary band. This is what many people call ‘gravel,’ thinking that a piece of gravel got jammed into the foot at the white line and worked its way up and out through the coronary band.”

Usually infection that breaks out at the coronary band or heel is a sole bruise that abscessed and worked its way out through a path of least resistance, coming out through the soft tissues instead of through the horny sole. Soaking the foot or using a poultice can help bring the abscess to a head and speed up the process so that it can either break out for drainage or be opened to drain.

“If you suspect an abscess and decide to soak or poultice, include the coronary band in the soak or poultice wrap, in case it wants to come out the coronary band,” Bullock said. “If you used hoof testers and don’t find a tender spot but the horse has an increased digital pulse (denoting inflammation) and you know there’s something brewing, palpate around the coronary band with your fingers; you may find a sensitive area where it wants to come out.

“On occasion when it’s difficult to get an abscess to break out and drain, the veterinarian may block or numb the foot so the horse isn’t feeling pain, and then have someone longe the horse. Sometimes exercise and movement create enough pressure in the foot to help bring it to a head and pop out a little quicker,” she said.

“An acute bruise can be eased with cold (to reduce pain and inflammation) rather than a hot soak, and we recommend putting the foot in ice (ice-water soak or an ice boot).”

Ice also can possibly keep an acute bruise from worsening into an abscess.

“We wonder why some horses abscess and others don’t,” Bullock said. “The horse might be fine one day and the next day three-legged lame with an abscess. The fluid buildup (serum, pus) creates the pressure inside the hoof and acute pain, but we don’t always know if it started with a bruise. We assume it was trauma and tissue damage that led to the bruise and abscess.”

If an abscess had to be opened (a hole through the sole) for drainage, the next question is what to do about the hole in the sole. It can be protected between soakings with a bandage over the bottom of the foot, but after it has fully healed you still have a hole and it needs protection until the sole tissue regrows and fills the hole.

“This is very sensitive tissue. The horse can be kept in a protective boot or shod with a pad to protect that hole while it fills in,” she said. “I often use Gorilla tape (the most durable form of duct tape) to add protection to the bottom of the foot. You want to make sure no dirt or debris can get in that hole, and protect it until it fills in and hardens.”

If the horse isn’t traveling on sharp rocks or gravel, a regular hoof pad will be adequate after the horse is recovered, but if the horse has a defect or soft spot in the sole, or must travel on rocks, gravel, or frozen ground, you need more sole protection.

“In some cases I’ve used a hospital plate (a removable metal plate that attaches with screws to the bottom of the shoe) while treating the foot,” Bullock said. “This is an excellent way to protect the bottom of the foot. Occasionally a horse will have an abscess in the frog, and it’s nice to be able to use a hospital plate to protect it between treatments.

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“You can also use casting tape,” she continued. “If the area has healed and there’s no more pus—just a sensitive area, and you don’t want shoes—you can just cast that foot. I’ve also used a leather pad to cover the sole and then used casting tape to hold the pad on. People have used many innovative ways to protect the bottom of the foot. You can also glue a wooden clog onto the foot if you don’t want to subject the horse to nailing. If the foot is still sensitive, you don’t want to be tapping or nailing on the foot.”

Bullock recommends anti-inflammatory medication such as Bute at the beginning of treatment. Pain from an abscess under the sole can be excruciating; swelling and pressure have nowhere to go, encased in the hoof. It’s similar to how your finger or toe feels if you’ve smashed it and there’s swelling and/or bruising under the nail.

“This is the analogy I give my clients—to envision how that feels,” she said. “It really helps these horses to give an anti-inflammatory in the early stages of the bruise, to ease that pain and inflammation.” <sup>BH</sup>

*Heather Smith Thomas is a freelance writer based in Idaho.*

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