Bruising by Bars and Imbalances

by Sandy Judy

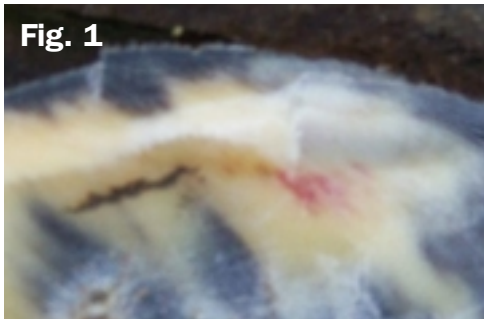
Experience and my education has taught me that bruising doesn't necessarily come from external injuries, like a stone. Bruising may come from excess horn that damages the corium internally, or imbalances within the hoof capsule. The corium, when damaged, bleeds and mixes with the horn that is produced, and can be seen later as a bruise. I was taught that all wall horn is either black or white (sole and laminar horn are softer and less dense and have a cream color). Bruising can look red, yellow, purple or blue.

If you accept the model of hoof function that many barefoot schools propose: that the hoof capsule expands upon weight-bearing, pulling blood into the various kinds of corium (laminar, solar, frog), then you understand that when the hoof capsule has excess lumpy horn, the corium can be bruised. The horse doesn't have to encounter a rock. He can ***grow*** a "rock" of hard horn!

Bruising can be seen anywhere in the hoof where corium was damaged when the horn was being formed. ***Seeing*** the bruise is often only possible when the outer sloughing horn is removed. Beginner trimmers often panic when they see bruising, thinking that they have somehow cut to blood. But often they are just seeing bruising that occurred and has grown out. It is indicative of an imbalance or excess horn. It can occur during transition from poor hoof form to a more functional healthy form. Stresses put on the corium beneath will show up later as a bruise.

The sole corium is contiguous with the laminar corium and frog corium. It covers the inside of the hoof capsule like a capillary sock. Capillaries are only one cell thick, so that nutrients can flow freely through them. Capillaries feed each papilla. Each papilla forms a horn tubule. Lever forces within the capsule can stretch and tear the papilla, causing blood to mix with the horn tubule and show up as a bruise.

Bar horn is the same as wall horn and is formed by bar papilla. Bar horn consists of hard dense horn tubules. Sole horn is softer horn. When the bars are impacted or deformed through contraction, the area of corium forming sole horn at the junction of the bar and sole can be bruised or torn. It shows up later as tiny red lines in the sole. (Fig. 1)

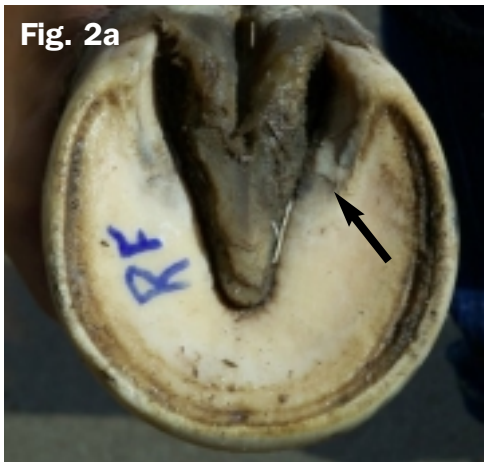


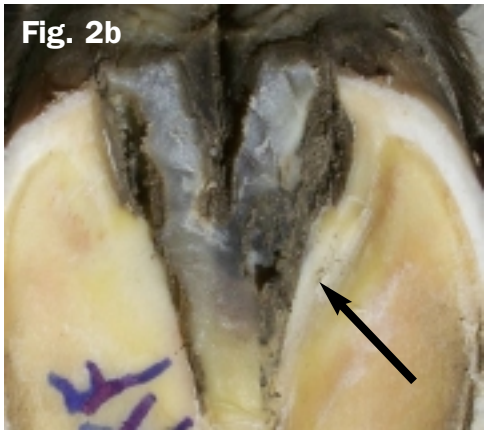
Close up of tiny bruise on sole next to bar partially trimmed off sole.

If there is significant contraction causing bars to be pushed sharply upwards, the corium can be torn. High sharp bars in the interior of the hoof capsule can damage or distort the internal structures of the back part of the foot (bulbs, digital cushion, lateral cartilages, DDFT, etc.) Heel pain from excess bar causes the horse to put his weight on his toe, which may damage, stretch or tear toe laminar corium.

Bar horn can also become compressed into a wad, causing it to "pool" or fan out onto the sole. At this juncture of sole/bar and frog, excess bar can push into the frog and cause bruising or abscessing in the frog. You may not even notice this bruising until the top layer of horn is trimmed enough to see it. I have found that these pools are more prevalent on outside bars (right side of right hooves and left side of left hooves). (Fig. 2a & 2b)

All photos courtesy Sandy Judy

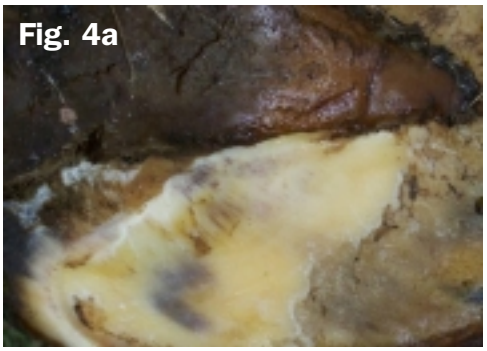




The tip of the frog can also become bruised from active hoof mechanism when it is higher than the sole. Generally, I have found that the frog grows healthy tissue from the ends of the bars to the tip, because circulation that part of the frog doesn't have to travel over the top of the bars. Thick or impacted bars can choke the circulation to the frog tissue from the ends of the bars to the bulbs. Thick bar pools can bruise the frog as shown in fig. 2.

The direction of growth of all horn tubules is down and forward. When over-grown, the bar horn can spill out over top of the sole. You can even peel it up with your fingers or a hoof pick if the hoof has been soaked. (Fig. 3)

Bar horn can sometimes mix with sole horn. However, sole horn is very different from bar and wall horn, just as your fingernails are different from the skin on your fingers. In a hoof that has a healthy shape, the bar may grow over top of the sole, or pool into a separate lump. (Fig 4b) I have found that under-run heels with curved bars that lay over and hooves with contraction are more prone to bar/sole mixing. (Fig. 4a)



Above: Close-up of bar/sole mixing. Below: close up of thick bar, partially trimmed.

Addressing the CAUSE of the bar pools, which are often contraction or under-run heels, and keeping the bar trimmed, will get the papillae to realign so that the bar horn tubules start to grow with a proper angle to the ground. The deformed bar and bar pools must be regularly trimmed to allow the sole corium to get good circulation, and the under-run heels and contraction must be corrected. This is not always easy. This type of trimming and rehab to reverse contraction is best done in a hoof clinic. However, many people have been able to make good progress with boots and diligent trimming, soaking and walking.

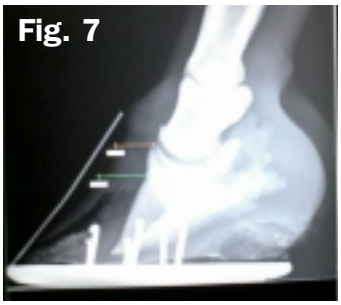
The photo in fig. 5 shows a white foot with contraction during rehab, from an Oldenburg gelding. Improving blood flow to the frog can be seen, yet there is still necrotic tissue that can be seen just beneath the surface of the white frog. Bars were trimmed to a very thin strip to help restore circulation to frog corium, so that new frog horn can grow. As the hoof widened, circulation returned to the pinched sole corium under the bars and resulted in bruising and the necrotic tissue in the frog was abscessed out. Reversing contraction may cause bruising and abscessing as the hoof capsule changes shape and damaged tissue is abscessed out.

All photos courtesy Sandy Judy

Fig. 6a & 6b are a bulb views of the same foot, showing the improvements made in reversing the contraction. This was done with mostly owner trimming, and rehab conditions that were **not** ideal. It involved lots of soaking, walking on a rubber track and trimming to facilitate decontraction.

Some people may consider it "invasive" to trim bars to this degree. However, this horse was a 6-year old in wedge pads with bucked knees when I met the owner. We were learning as we went, and she did most of the trimming over the years herself, with occasional help from an SHP and me. We got information directly from 'The Hoofcare Specialist's Handbook' by Dr. Strasser. The owner was able to ride the horse much of the time. I contend that it is much more invasive when a vet or farrier does a resection or grooving, or the horse is euthanized at an early age due to "navicular disease."

Fig. 7 is a photo I took of an x-ray of a mare's front foot that I saw at a vet's clinic during a monthly farrier/vet learning session. The veterinarian had done a resection on this 6 year old mare. He confided in me that he didn't give her much hope. The horse's coffin bone was seriously near protrusion, but she still preferred walking on her toes, rather than weight the huge bars she had. She was kept medicated, stalled and shod with 'orthopedic' shoes. It illustrates what might have likely happened to the Oldenburg, had the owner not started using the Strasser Method. The Oldenburg is now 13 years old and fox hunted regularly!



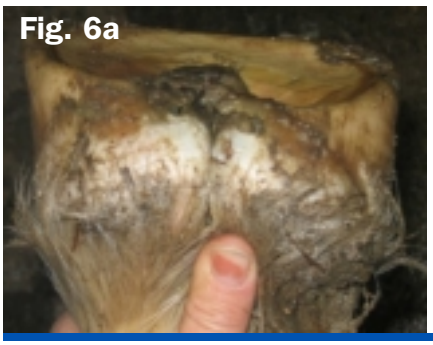
Laminar horn can have bruising, too. Imbalances in the hoof can torque the laminar connection, causing small tears in the papillae of the laminar corium. This bruising grows down, and by the time you see the bruise, the damage may have occurred weeks or months ago, and bacteria may have already begun to break down the dead horn. This is often called "white line disease," but it's just the nature of what happens when bacteria and fungus feed on dead material. Much like fungus grows on dead moist parts of a tree, the damaged white line makes a great place for fungus to grow. The key to healthy white line horn is killing the fungus and restoring healthy blood flow and hoof shape.

Bruising is more noticeable in white horn than in black horn. Bruises can also be seen in the exterior layer of hoof wall when the corium at the coronary groove was damaged as it was being produced. A particularly long gallop on hard ground can show up later as a bruise on the wall. This is where it helps to know the recent history of the hoof. Fig 8a & 8b are an example of an otherwise healthy-hooved horse that was galloped hard and long on a packed dirt road. One foot is black and one is white. Both hooves were similarly bruised, but it was less obvious on the black foot. In 6 months, the bruises were completely grown out.

Imbalances in the hoof can cause bruising in the wall (Fig. 9). Since the wall horn grows down in layers, it is possible that only the outside layer of horn shows bruising. This horse had much worse problems than just this small bruise on the outer horn layer, but his hooves were completely transformed in 9 months!

If the damage to any parts of the corium is extensive, it can be walled off in the form of an abscess. An abscess may present with heat and severe lameness, or it may go totally unnoticed. An abscess can come from externally introduced bacteria from a cut or puncture. But more often, it is usually a sterile, internally-produced pocket of pus created by corium damage which the body detected when blood flow was returned to an area previously damaged by pressure. When a horse is going through transition from a contracted hoof into a less contracted shape, it is very common to see both bruising and abscessing.

Bruises from excess bar, imbalances or during the process of reversing contraction can be very alarming, but generally, they grow out in time. Changing a hoof from an unhealthy shape to a healthy one does not usually come without some bruising.



About the author: *Sandra Judy has been studying and practicing natural horse keeping, hoof trimming and rehabilitation methods for several years including full participation in the 2005-06 SHP course. She trims her own herd of 7 horses and others. You may email her at sandra.judy@att.net*