Originally appeared in Trail Blazer magazine

Yes, You Can Improve your Horse's Hooves!

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There are many ways to improve the quality of your horse's hooves in between regular farrier or hoof trimmer visits. I have compiled a list of seven simple suggestions that you, the horse owner, can implement at your home or stable. These steps will help to improve the quality of your horse's hooves. Remember that a happy horse starts with healthy hooves!

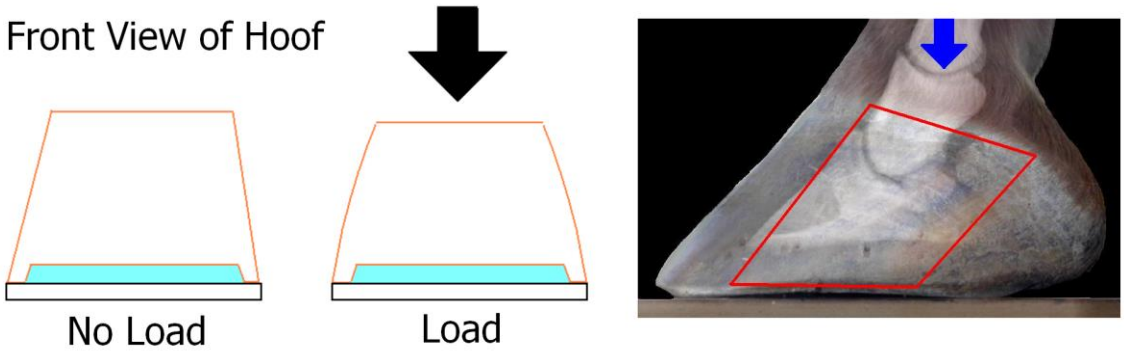

Figure 1: When the horse puts full load on the hoof, the walls flex slightly outward.

1) Make sure that your horse has access to free exercise, such as regular turn-outs. This is a crucial part for improving your horse's hooves. If you cannot provide regular turn-out time, try to go jogging with your horse. I used to do this when I was boarding my horses. If you decide to do so, make sure that you have trained your horse to be safe when jogging with you. The reason why movement is so important for hoof health lies in the production of keratin. The hoof capsule is made of keratin - it is the same protein that is present in your epidermis - your skins outer layer. In order for the epidermis to produce quality keratin, it needs

movement to stimulate the production of skin stem cells. Skin stem cells are created in the lowest layer of the epidermis (called the 'stratum basale'.) Therefore with exercise and movement you will have better hoof growth. Adequate movement also helps with proper hoof function: for example blood flow which is obviously important for the entire health of the hoof. In order to have appropriate blood flow within the hoof capsule, the capsule needs to be able to expand under load which occurs when the hoof is loaded during the 'mid-stance' phase of locomotion. Horses should land mainly heel first, then the hoof capsule is fully loaded when the entire hoof is on the ground, finally you have the push off phase when the horse pushes off at the toe. The hoof capsule needs to also be able to return to its original shape after full load.

If the capsule is impaired to move freely it is very likely that it will affect proper blood flow, hence hindering proper hoof growth. It is known that veins, for instance, need mechanical means to bring the blood back to the heart. The movement of the capsule aids in bringing blood back towards the heart.

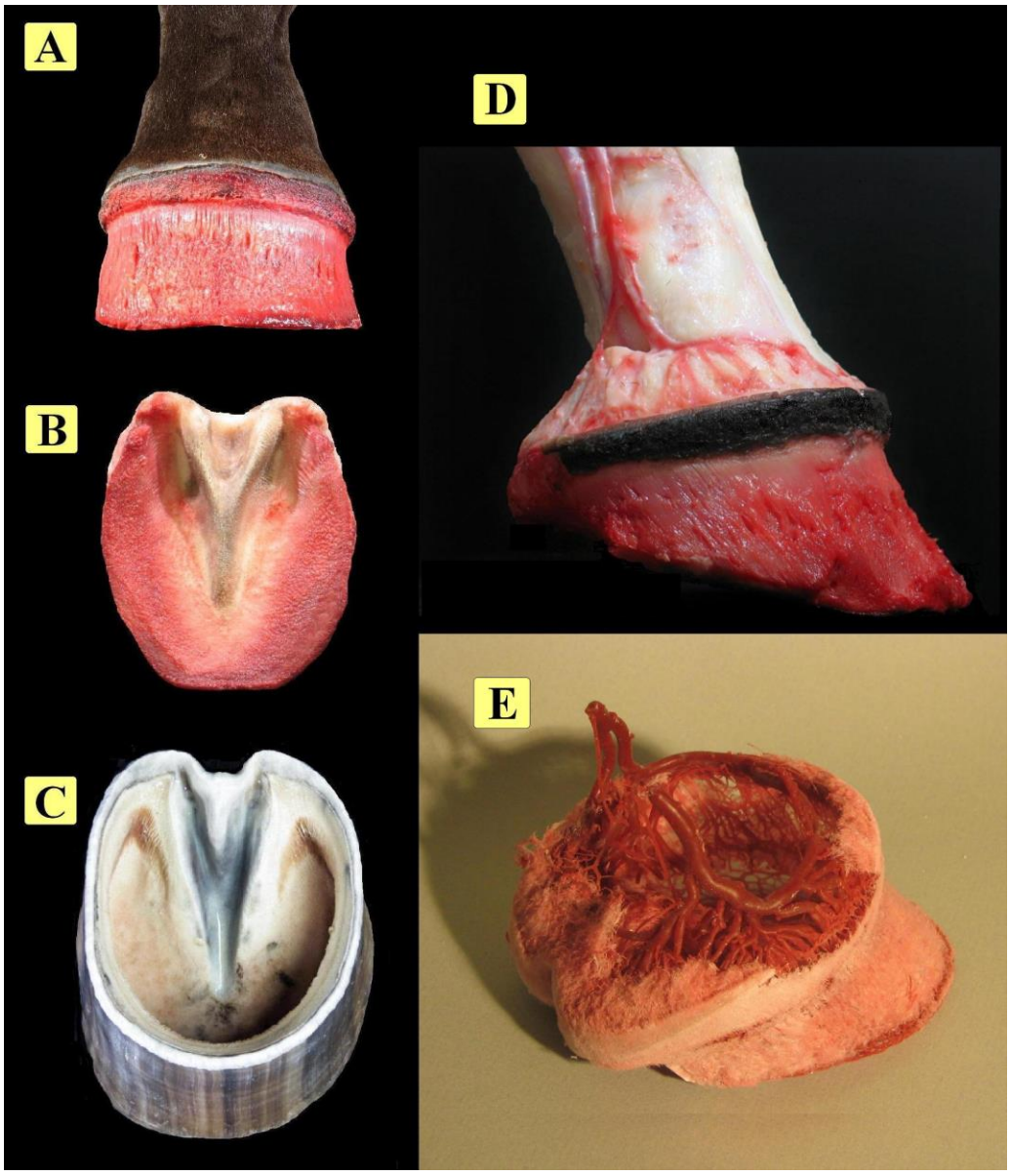

Figure 2: Normal flexing of the hoof aids in blood flow within the lower limb. Figure 2A and 2B show the dermi of the hoof. Figure C shows the hoof capsule - epidermis of the hoof. Figure D shows the some of the main vascularities passing behind and over the ungual cartilage. Figure E shows a latex casting of the entire vascular system of the hoof capsule (casting model courtesy of Dr. Horst.)

2) Pay attention to the moisture content in your area. If you have access to regular turn-outs, you will need to pay attention to the moisture content of your turn-outs. Excess moisture is not good for horses. Keratin is a molecule that weakens when wet. A weakened hoof, especially the sole will not be able to provide adequate support to the entire support to the limb. The pedal bone is supported by the sole not just by the walls. Lack of natural sole support has adverse effect on the entire skeletal system of the horse and the horses ability to move comfortably and soundly. If you live in an area that is prone to excess moisture, try to provide a well drained turn-out where your horse can stand at least some part of the day. A covered pen with good drainage would be ideal. This suggestion applies to horses that are shod or barefoot. Moisture is the enemy of keratin since it weakens it.

3) You also need to be aware of your footing especially if you ride your horse barefoot. Some grounds are quite abrasive thus can overly thin the sole. A thin-soled horse is not a happy horse!

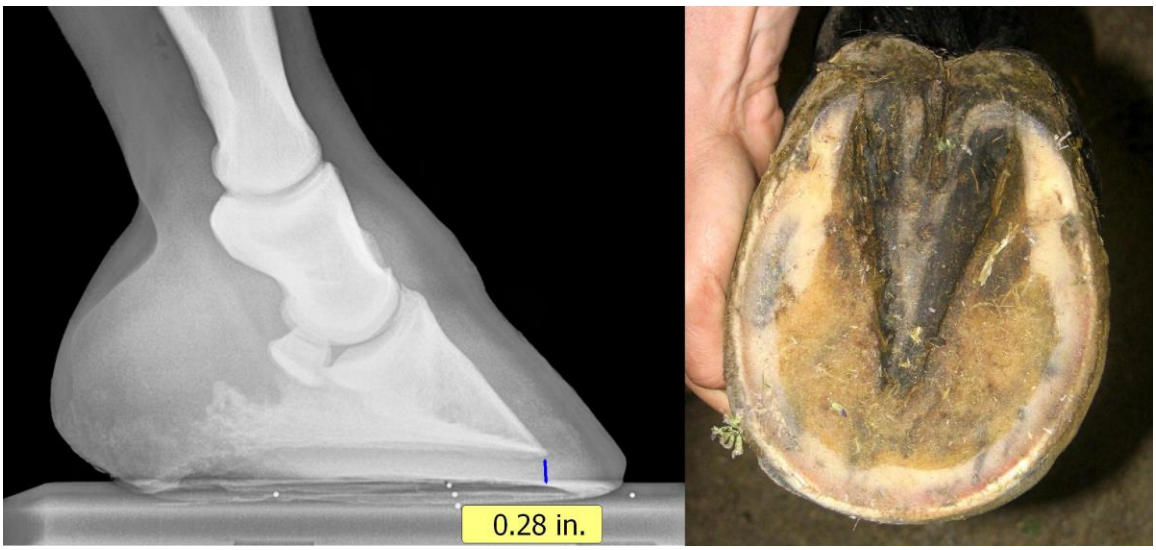

Figure 3: A thin-soled horse will probably be sore and may show bruising. The sole depth measured in the radiograph is quite thin - 0.28 inch. Note the bruising at the sole on this hoof near the toe.

As mentioned earlier, the thinning of the sole may eventually affect the internal bone stance. Often when a sole becomes too thin the pedal bone starts to sink downwards. Most thin-soled horses have a seriously dropped sole, meaning the sole is abnormally lower than the walls (Figure 4). Note that most adult horses have soles with some evidence of being dropped. This effect occurs due to loading and natural aging issues. Remember -- gravity always wins! If you suspect that your horse has a very thin sole, for example if you can move the sole with your thumb, you have a problem. I would recommend that you call your veterinarian and have radiographs taken. Sole depth can be very easily seen and measured with radiographs. In general, sole support material is beneficial if applied correctly. Finally, lack of sole depth may damage soft tissues (sole dermis, veins, arteries, etc) and may even damage the pedal bone. Pedal bones can become inflamed and even de-mineralize under excessive load. Shod horses are not necessarily immune to thin soles even if the farrier left plenty of sole after trimming. The combination of moisture and abrasive ground may wear away the sole very rapidly. This situation is counter-indicated for both barefooted and shod horses. A healthy hoof needs plenty of quality sole: at least half an inch of quality sole. A thin-soled horse is not a happy horse!

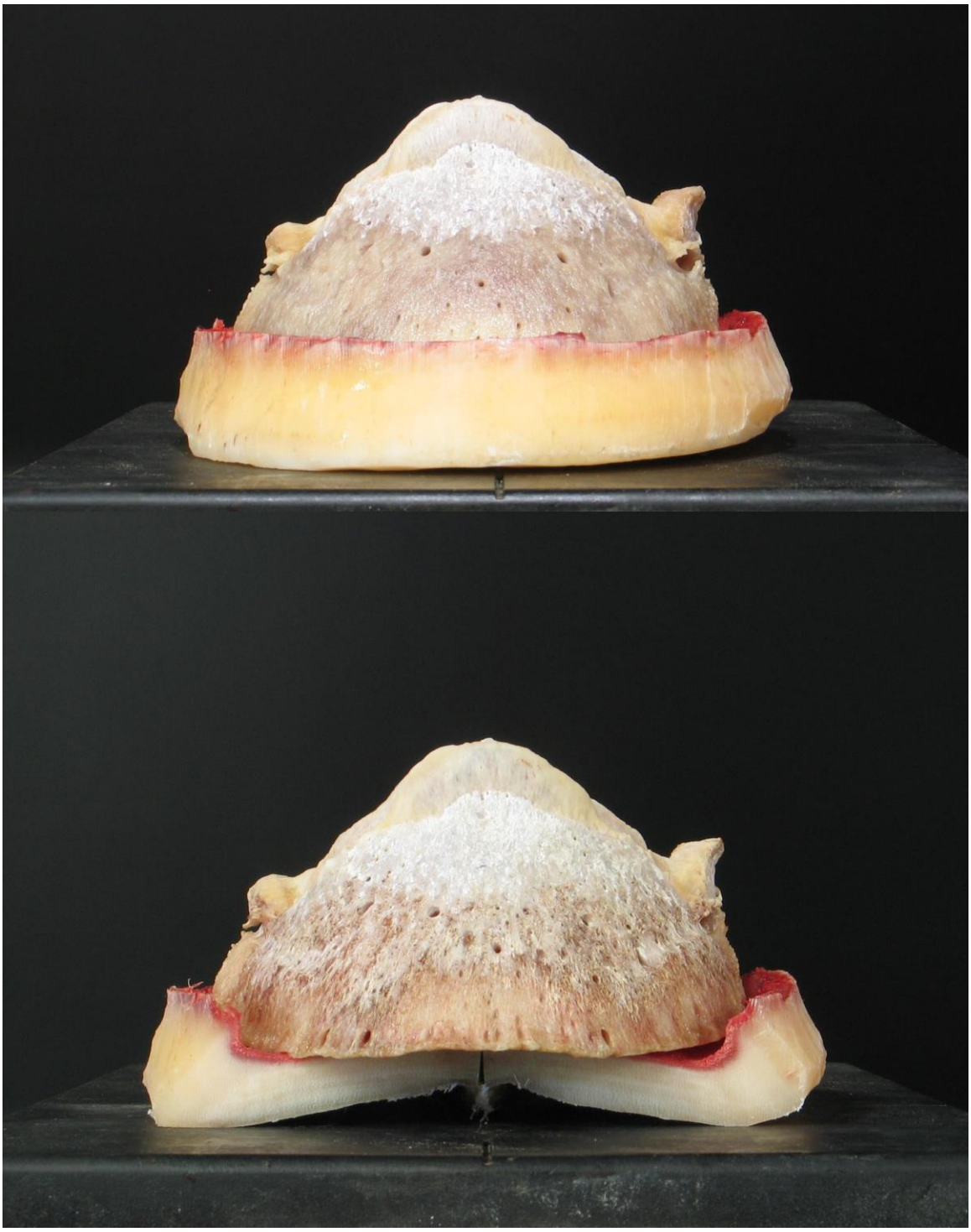

Figure 4: A horse with a ‘dropped sole’: the lower rim of the P3 bone has pushed down into the sole. Compare this with figure 5, which shows the bone position on a reasonably good sole. Photos by Mike Savoldi.

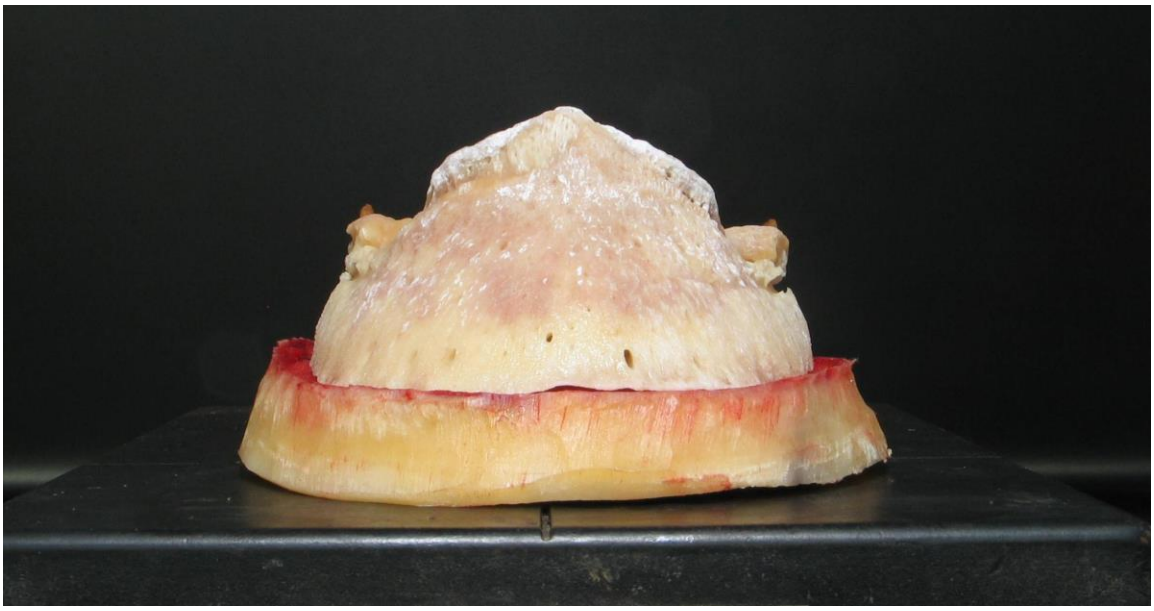

Figure 5: Healthy position of the bone riding on the sole, without ‘sinking’ into the sole.

4) Make sure that your horse is trimmed and/or shod properly. The way a horse is trimmed, shod or not will also affect its hooves. A good hoof needs plenty of quality sole, and should stand 'under the bony column' (figure 6). Have your veterinarian take preventative radiographs to see if you have enough sole, if the pedal bone is in an adequate position within the hoof capsule. Check your horse's stance -- does your horse stands square under itself? Hooves need to stand under the bony column, this means that hooves should be back under the cannon bone as much as possible.

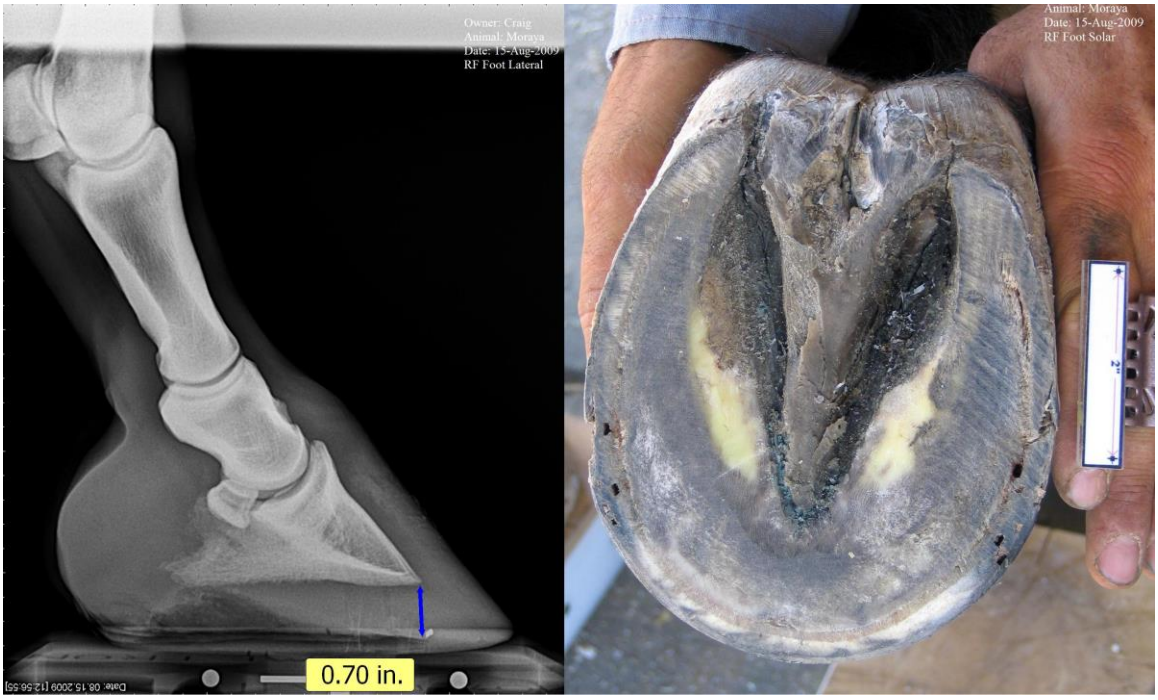

Figure 6: Good foot with a thick (0.7 inch) and healthy sole. You can see the canon bone in the upper left hand corner of the radiograph and the hoof is pretty well 'under it' in a normal position.

Do his hooves stand under the bony column? Become aware of your horse's hooves flaws. Are your horse's hooves naturally thin? Do your horse's hooves tend to grow unevenly? Quite a few horses have one high and one low hoof. To keep this condition under control, you may need to have your horse trimmed at shorter intervals such as four weeks instead of six weeks. Some horses cannot maintain sound hooves without prosthetics even with the best management. You may need to protect your horse's hooves. If you decide to use metal shoes try to keep the amount of metal on the hooves to a minimum. There are plenty of pads and packing materials that can be added to replace more extreme methods of shoeing.

5) Have your veterinarian take preventative radiographs. Don't wait until you have a hoof problem to see what is going on with your horse's hooves. The optimal time to take radiographs is when

your horse's hooves are at their best and your horse is moving soundly. Give access to these preventative radiographs to your farrier or hoof trimmer. Radiographs give valuable information about a hoof: like the exact shape of the pedal bone, current sole depth, toe length and much more.

6) Don't forget that horses are not really designed to be ridden. I enjoy riding horses but I am aware that my use of the horse will affect its biomechanics, namely how the hoof loads. It is also very important that you pay attention to your riding skills and your horse's overall physical fitness, as well as your own. Make sure that you have the proper saddle and tack for your horse! Poor riding, poor fitness and poor tack will not only affect the horses locomotion, its hooves, but also its entire well-being!

7) Nutrition is also very important. Do not overfeed your horse. It is hard to maintain healthy hooves if a horse is obese. Obesity may eventually lead to metabolic problems such as equine diabetes. If you need to find vitamins and other supplements to help your horse's hooves, check first what you are feeding to your on a regular basis. Have your current hay analyzed. Sometimes a simple change in hay can help a horse's hooves. If you feed horse food formula, such as hay pellet mixture; make sure that you read the labels carefully. Most horse food formula already contains vitamins and such. You may actually hurt your horse's metabolism by over-supplementing its feed. I am not against feeding vitamins, herbs and other supplements but I am very careful on how I dispense of them. I would also advise having a blood test done on your horse if you suspect that your horse's hooves show signs of nutritional deficiencies. An ounce of prevention is worth a pound of cure!