OMEGA – a 19-Year Case Study

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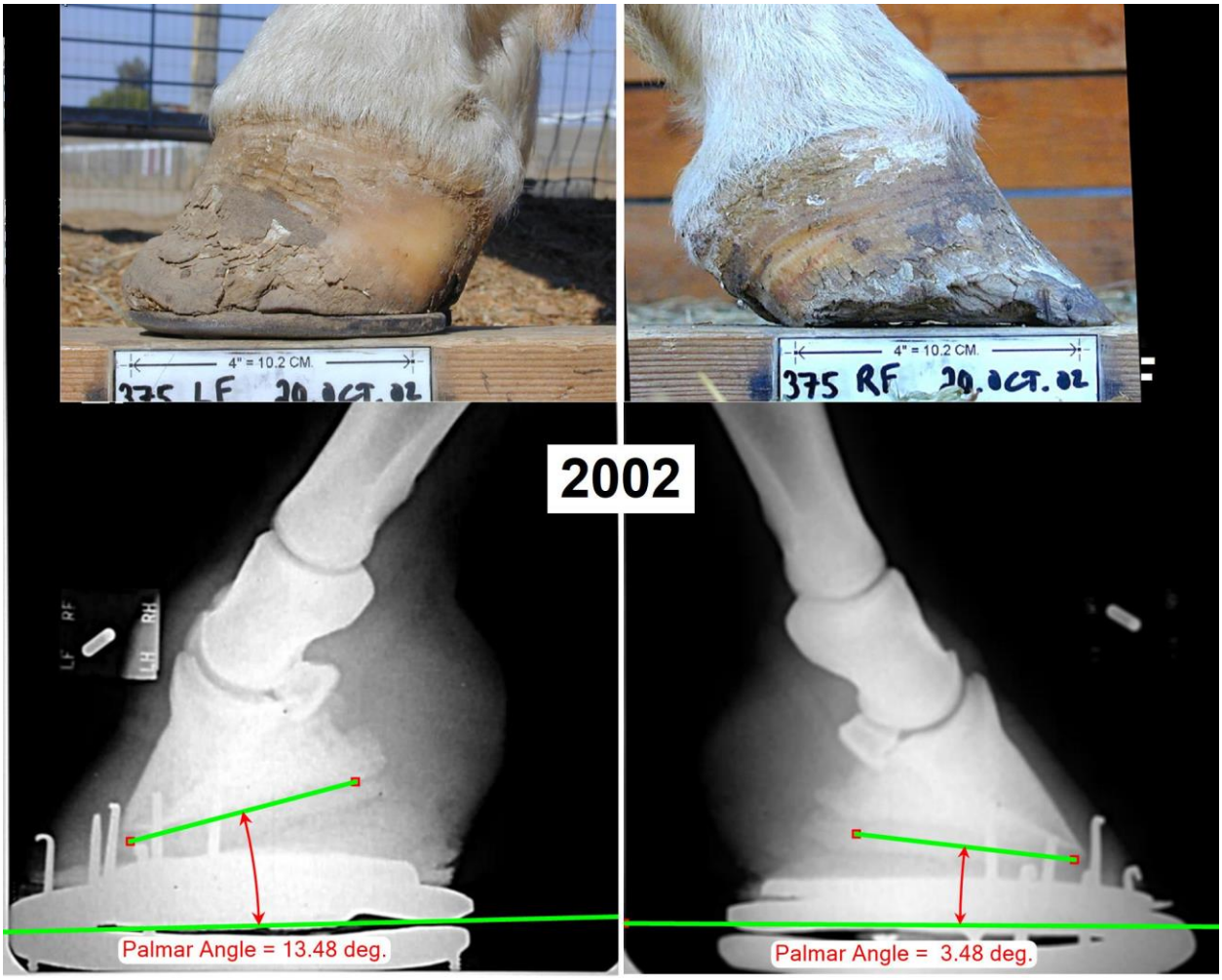

Figure 1: The radiographs are from February, 2002, and the photos are from October, 2002. This is how the feet looked when I first met Omega.

I started to work on Omega, a Dutch warmblood mare, in October of 2002. I was called to help this broodmare because

her hooves were quite compromised. I was told that she had a bout of laminitis prior to being bred. Her bout of laminitis occurred while running barefoot on semi-arid ground. It was not a metabolic issue but rather a matter of long-term poor hoof care and perhaps pasture management. Wisely, the treating veterinarian at that time did not think that Omega could be a serious performance horse. The owner then decided to make Omega a broodmare instead. Omega was leased to a warmblood breeder, which is where I found her initially. Omega was in foal at the time I started to help her. She successfully produced a nice colt. On a side note, it has always been puzzling to me that broodmares are not always the soundest animals or get the best hoof care. Omega's club hoof was probably a result of untreated limb contracture which probably occurred when she was a filly. It is hard to tell if Omega had a true genetic club hoof or if this condition was the result of untreated foal limb contracture. My recommendation for anyone who owns mares and foals would be to be very vigilant with their hoof care and nutrition. Also, in an ideal world, broodmares should be exercised to maintained good physical condition.

By October of 2003, I ended up adopting Omega. The owner wanted out of horses and asked me if I would like to own her, and I answered 'yes'. I had grown fond of her while I worked on her for a year prior to my adoption. I also felt that she would not have a bright future as a broodmare. Omega's hooves needed consistent maintenance because of her initial

bout of laminitis and her left front hoof conformation. She sustained an injury while at the breeding farm and required professional physical rehabilitation. Omega lived with me for over 18 years. I trimmed and shod her for 19 years. She was started under saddle by me and ridden until she was 22 years old. She was humanely euthanized in September 2021 for age related issues when she was 26 years old.

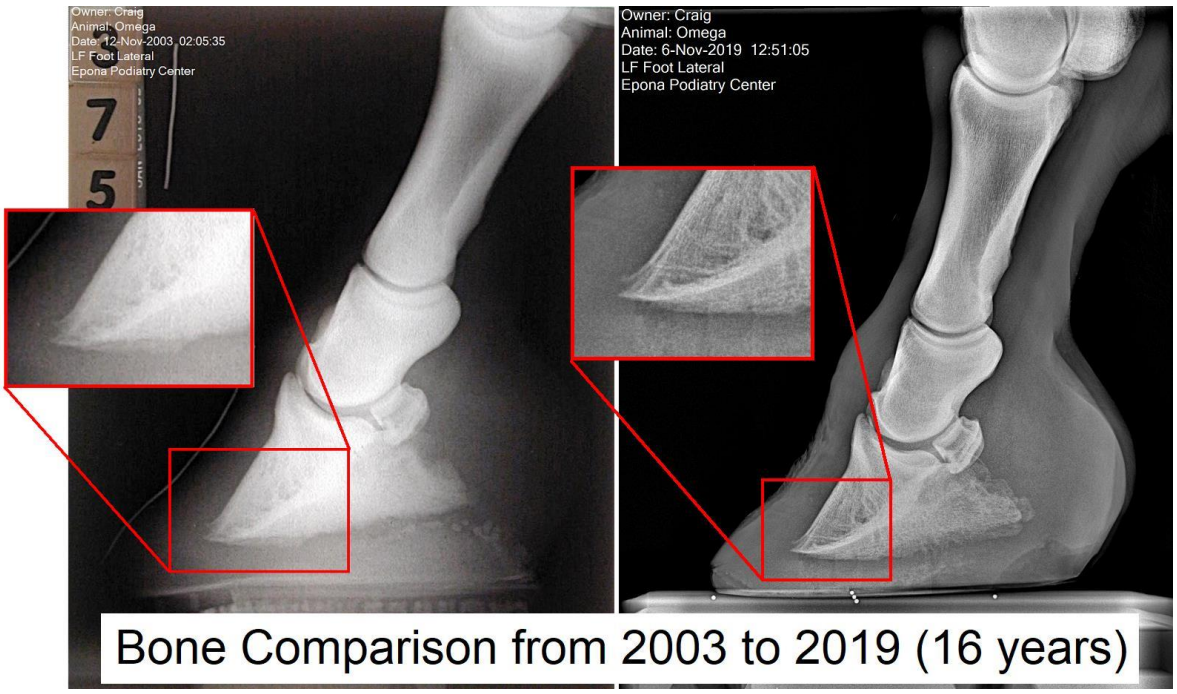

Figure 2: Remarkably little change in the bone over a 16-year period on her 'problem' left foot. Radiographs from 2003 were on film, whereas later ones are digital.

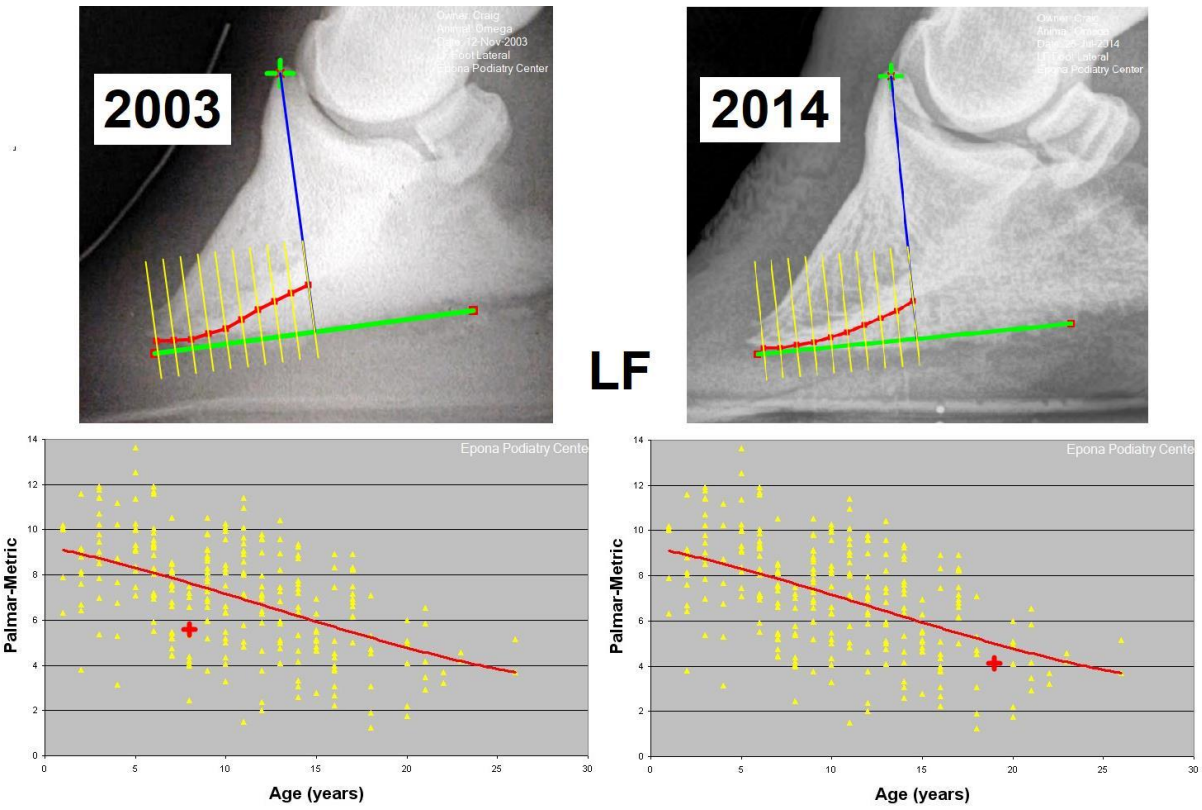

Figure 3: Using Metron's [Metron 2023] analysis of the palmar aspect of the pedal bone, the 'palmar curve' displays a flattening of its concavity. Probably due to the laminitic episode along with the overly high heels, the concavity of the left front pedal bone was lower than an 'average horse' even in the earlier stage of Omega's life. However, it also displays that there is very little change over a 11-year interval. Note that, most horses seem to lose vertical depth of the pedal bone over time as indicated by the red curve [Burd, Craig, Craig 2014].

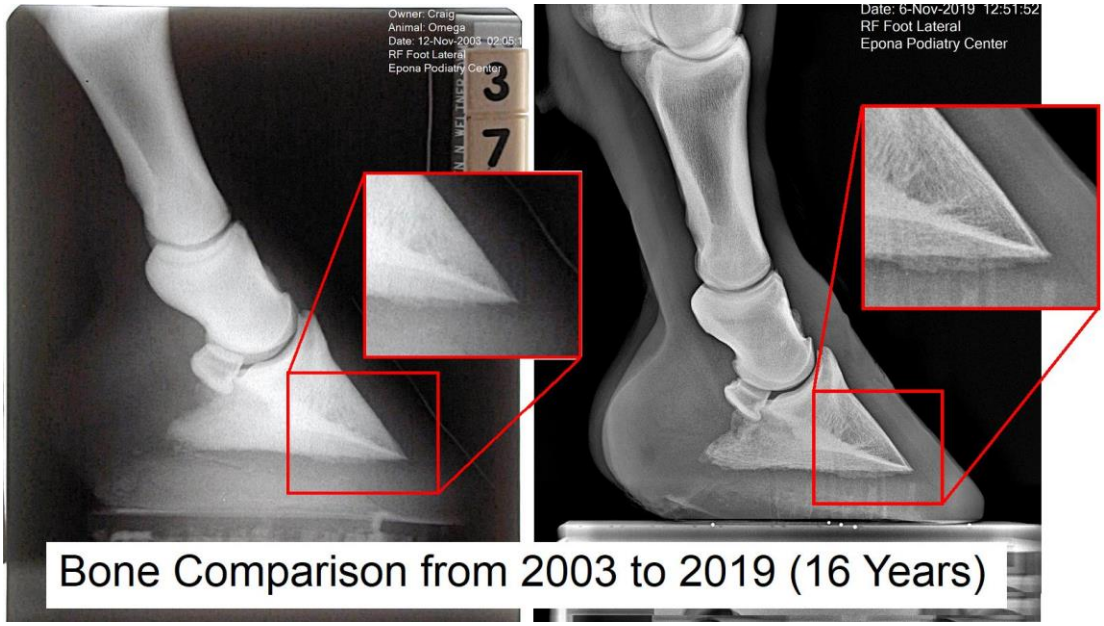

Figure 4: Little change in the bone of the right foot over a 16-year period.

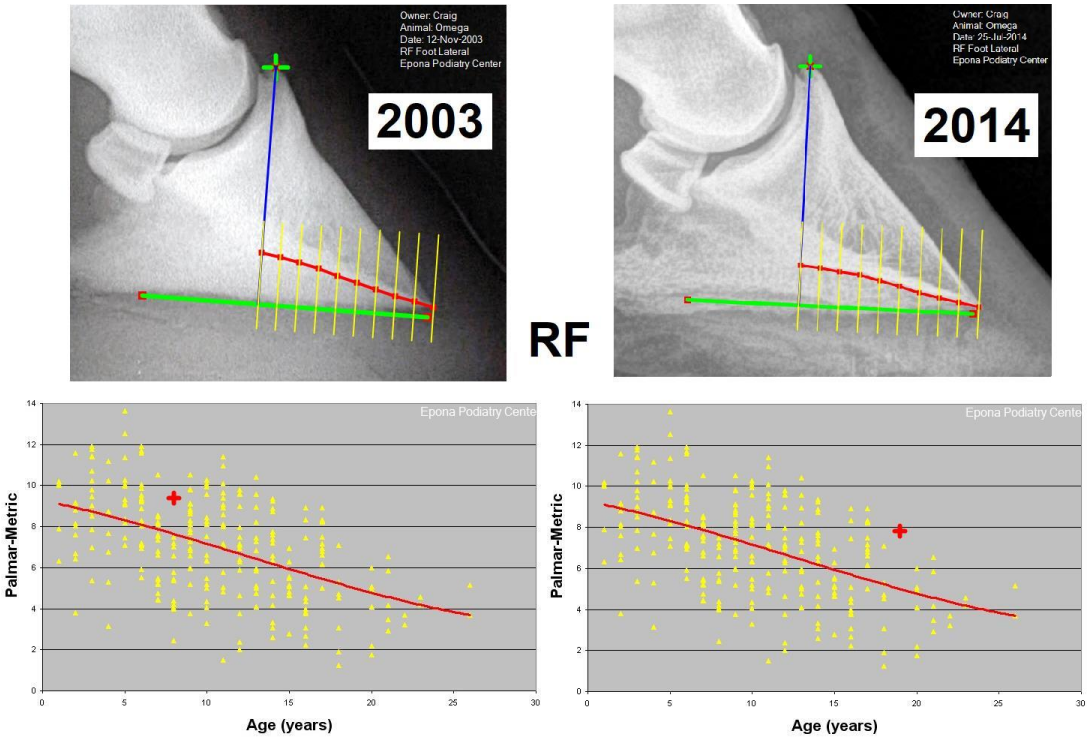

Figure 5: The RF has more concavity than the 'average' horse, and has maintained that over the years. It was probably lucky that Omega had a reasonably good right front hoof.

Figure 6: Left 'problem' foot cadaver shown as overlay of radiograph and photograph with window cut in the hoof wall to observe sole and bone. This is the hoof of a 26-year-old mare.

Maintaining Omega over the Years

I trimmed and shod her every 5 weeks. The club hoof was done on a two-and-a-half-week cycle. If her heels were left untreated for a longer period, I ended up with a high-grade club hoof. The idea is to lower the heels to shift the weight into the caudal area of the hoof, rather than at the toe. I have noticed that hooves with abnormal high palmar angles tend to show more loss of vertical depth at the toe than those which have average palmar angles, hence the importance to keep palmar angles within reasonable ranges.

Figure 7: Omega's left heels would always shoot up quickly over a normal shoeing cycle. Hence, for 19 years I lowered heels every two and half weeks!

I did not opt for a check ligament desmotomy on her left front hoof. Omega was an adult horse when I adopted her. I feel that this type of surgery, if necessary, should be done early in the life of a foal and only if other corrective methods have failed. Omega had excellent care throughout her life, which involved physical therapy and therapeutic shoeing and riding. Her hooves were radiographed at least once a year for 19 years! Her long-term radiographs indicate minimal changes in both pedal bones. The front left palmar angle varied between 4 degrees and 6 degrees throughout her life. The right front palmar angle varied between 3 degrees and 4 degrees.

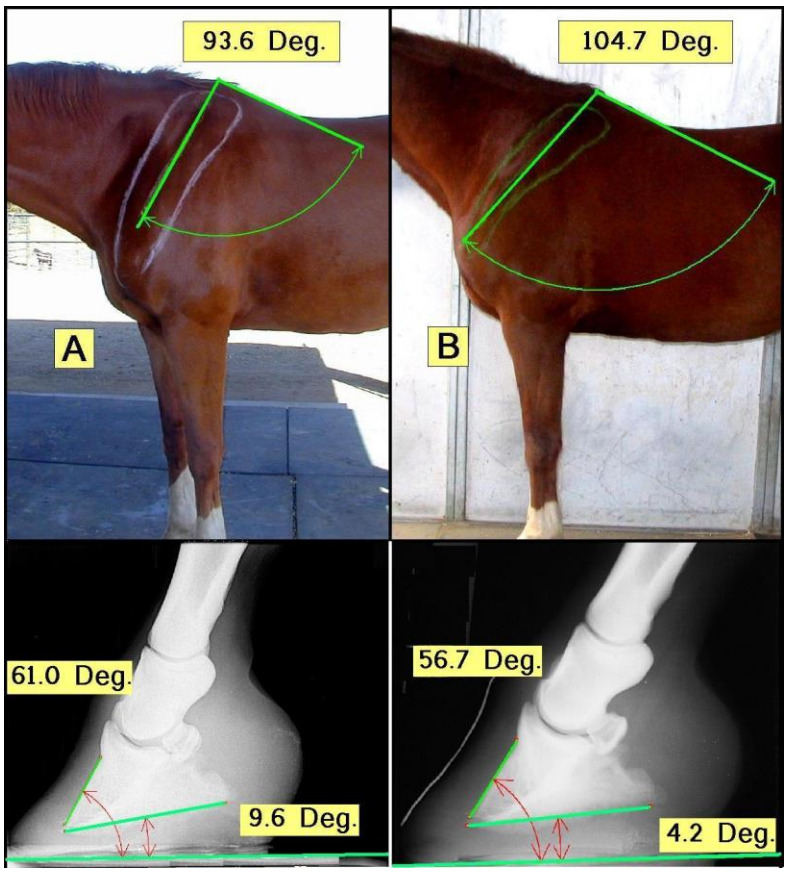

Figure 8: As the heels were lowered over time and the palmar angle stayed in a more normal range, Omega's posture improved. Her hooves always stood under the bony column but posture can be radically changed if the palmar angles are too high.

Omega was not a candidate to be left barefoot. She wore shoes in the front for most of her life. She was occasionally left barefoot in the hind only when not ridden.

Correct application of sole support, trimming and shoe placement are paramount for improving posture and locomotion. My approach to trimming is based on projecting the bony landmarks onto the sole [Craig 2015]. This is done in order to not let one's eye be fooled by natural shearing effects

which occur at the hoof. Further, hooves and bones are innately asymmetrical. It is important to adjust one's trimming and shoe placement accordingly -- but this is a discussion for another time.

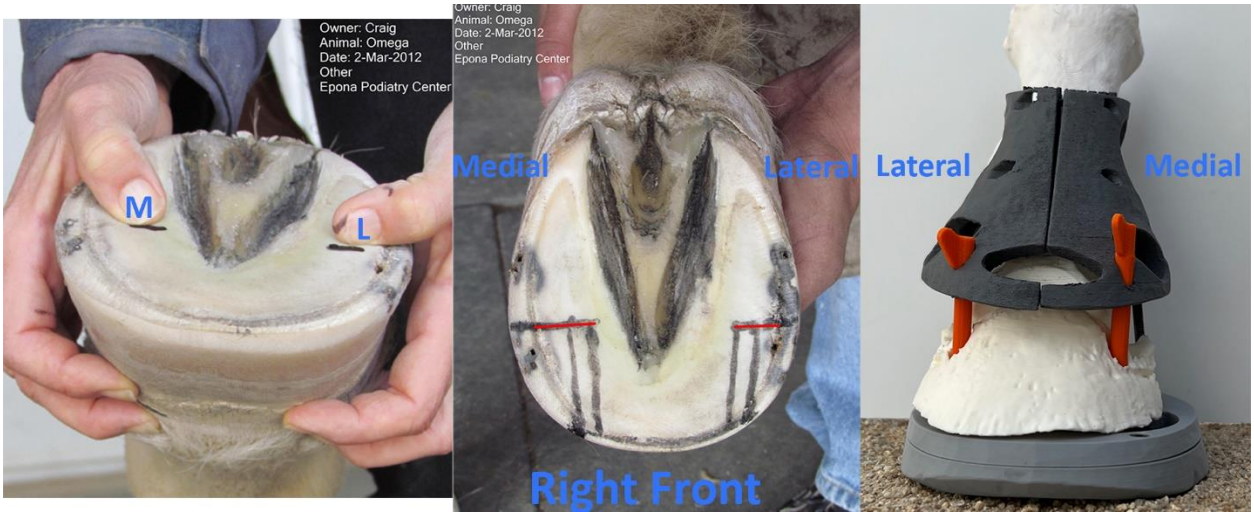

Figure 9: Omega's right front tended to shear to the medial side as the orthogonal projections of the bony landmarks indicate. It is something important to notice regarding trimming to place the capsule in a better position relative to the bones. Shoe placement is important if trimming is not enough to help fully with realigning the capsule to the bony landmarks.

Figures 10 & 11 show how I applied the shoes for Omega. There is no formula that applies to every hoof since horses' locomotion and conformation vary widely. What I have done with Omega worked for her. Other horses I worked on are treated somewhat differently since they display other issues, but throughout my years of trimming and shoeing (almost 30 years!) I first consider the relationship of the capsule as it relates to the position of the pedal bone in a 3-dimensional

manner. One must account for the innate asymmetry of the hoof and account for the 3 planes (solar, lateral, and medio-lateral) and how they interact with each other. I always check how the capsule position relates to the bony landmarks. Ideally, while looking at dorso-palmar view, the tubules should be centered around the articular area of the between the second and third phalanges. See image 11.

I never buff hooves high on the capsules near the bends of the hoof capsules. I like to observe the position of the tubules as they relate the bony column. For me this indicates whether the capsule is positioned correctly.

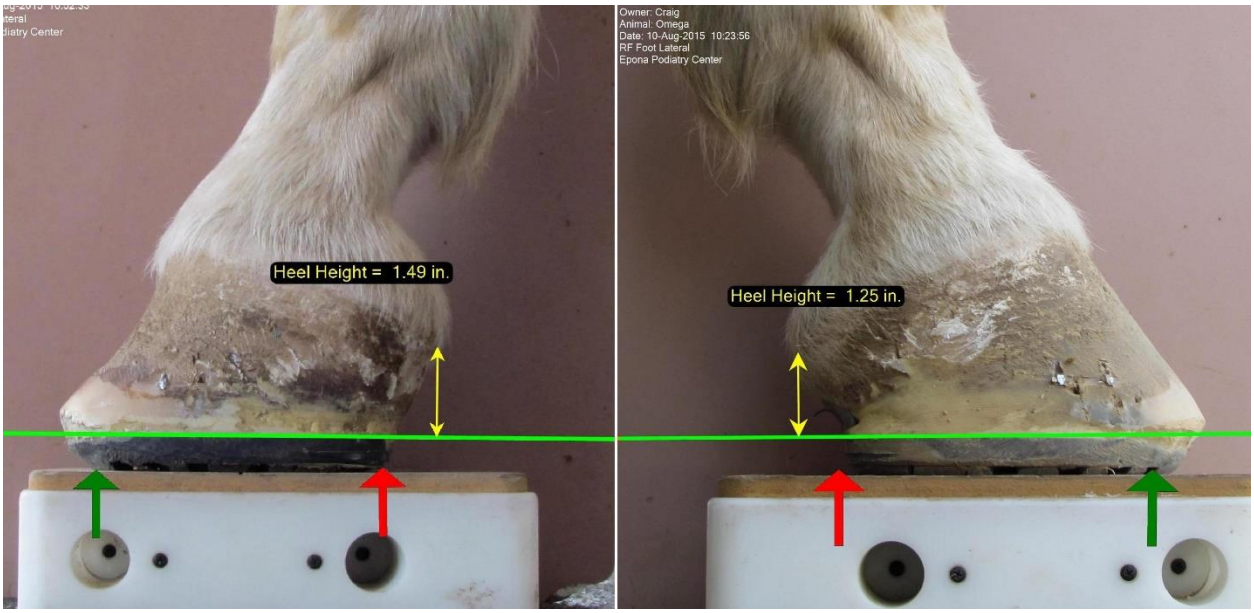

Figure 10: After trimming the left front heels I place the shoe directly at the last points of the heels never past (red arrow). I never bevel the shoe too steeply since she tended to wear her toe quite quickly, thus increasing the heel height after a couple of weeks. The idea here is to not increase palmar angle internally. For the right front hoof, I set the shoe further back (but not significantly) with the shoe bevel steeper in order to match the hoof wear on both hooves. Heel height never completely matched because Omega had a slightly shorter limb on the left front. In doing so I ensured that both limbs and shoulder remained even. Postural support is on a per horse basis!

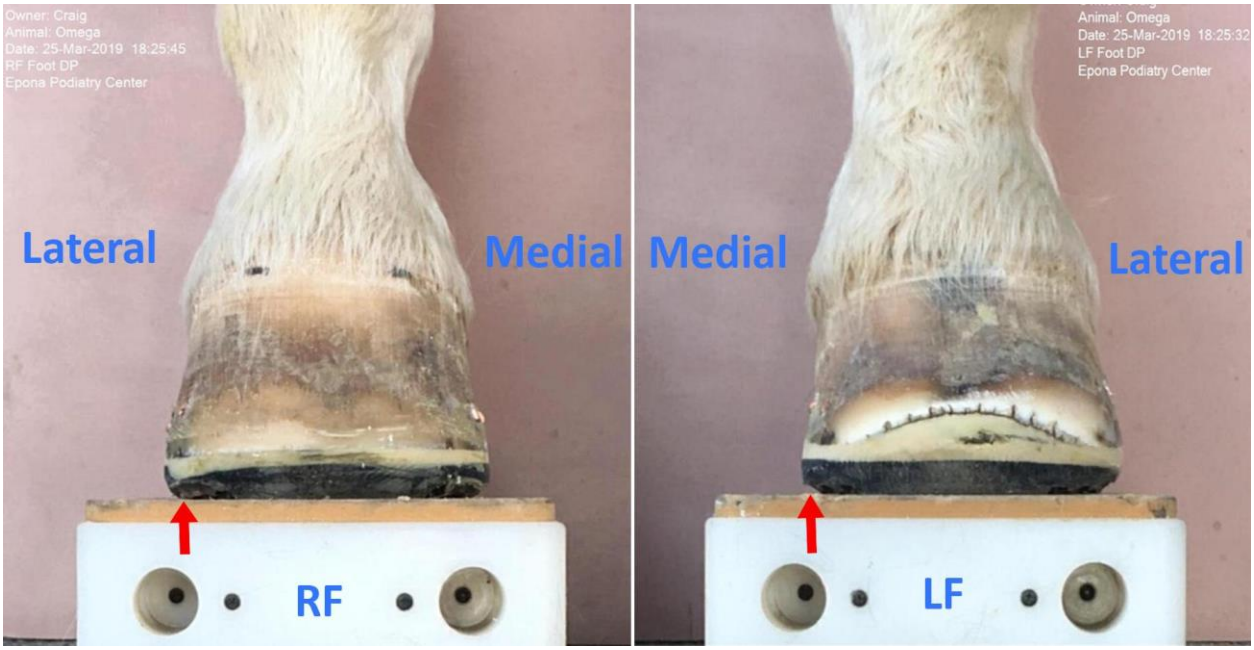

Figure 11: Each front hoof sheared slightly differently which is probably normal for most horses. It is due to conformation and general compensatory gaits from back to front. The left front hoof deviated slightly from the medial heel to lateral toe quarter. Correct trimming helps, but Omega did better with adding a bit more support to the medial side – never past the coronary band. The right front hoof deviated from the lateral heel to the medial toe quarter hence more support to the lateral side.

Some Remarks on Omega

Interestingly, her hind hooves reflected the issues Omega had with her front hooves (figures 12 & 13). Namely, Omega had a high/low in the hinds too. In Omega's case, her hind right was the high hoof as her club hoof was on the left front. Her low hind hoof was on the left hind and her low front hoof was on

the right. The right front hoof tended to shear to the medial side -- she would load harder on the lateral side. I think it was because it was her 'low diagonal' with her left hind being lower too. The pelvis was probably compromised either through Omega being a broodmare and/or her accident. When I was able to ride her consistently this leaning issue was not as pronounced but after I retired her, it became more evident.

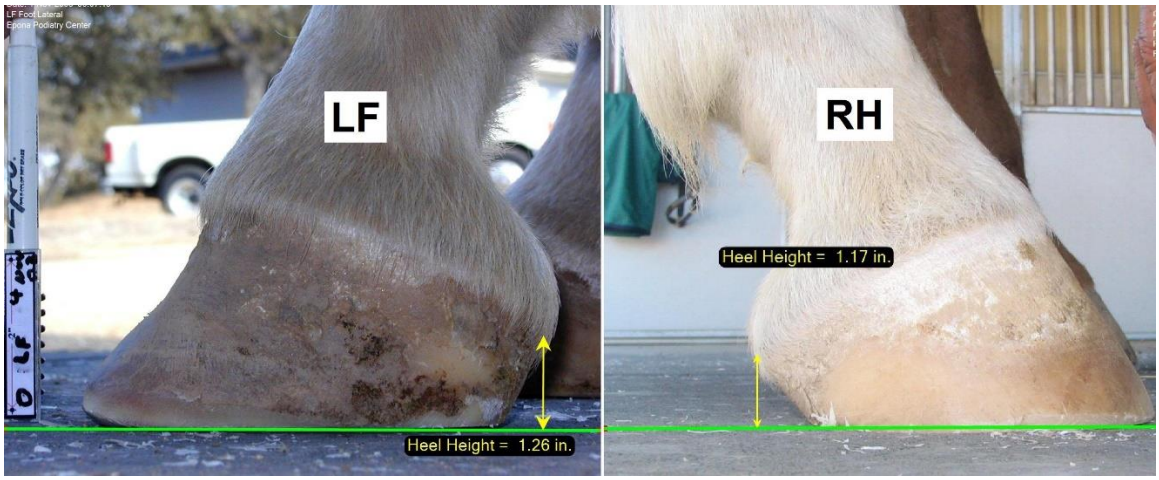

Figure 12: Omega's LF-RH diagonal.

Figure 13: Omega's RF-LH diagonal.

In Conclusion

I have many long-term case studies, maybe not as long as this one for Omega, but they show me that the key to success for trimming and shoeing is based on whether the hooves maintain an adequate shape, and reasonable palmar angles on all four. Postural stance is a function of the shape of the sole arch and position of the hooves as they relate to the bony column. Hoof position is not considered only from a lateral view but also medio-laterally.

Figure 14: Me riding Omega when she was 22 years old.

References

[Metron 2023] Metron-IQ software by MetronMind, Inc., www.MetronMind.com, 2023.

[Burd, Craig, Craig 2014] "The palmar metric: A novel radiographic assessment of the equine distal phalanx", Open Veterinary Journal, (2014), Vol. 4(2): 78-81.

[Craig 2015] A Modern Look at The Hoof, Outskirts Press, 2015.