

# HOOF MANAGEMENT OF AN ATYPICAL CASE OF SEVERE CHRONIC LAMINITIS IN A QUARTER HORSE FILLY

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Signalment: Three year old quarter horse filly.

History: After full term, a thirty pound foal was born unable to stand for the first four days of life partially due to a fractured left tarsus. The foal was referred immediately to a veterinary hospital for extensive neonatal care. Medical management was successful but she developed significant carpus valgus limb deformities that were treated at first with splints for two months and then surgery on the right forelimb only that resulted in significant improvement. Between eight months and 2 years of age, she was relatively normal despite her extraordinary small size. At the age of 3, she was brought back to the hospital and was diagnosed with severe laminitis of unknown etiology. At the referral hospital, foot care consisted of corrective trimming and application of 'banana' shoes for one shoeing cycle. The filly did not respond and the owner elected to bring the horse to the Epona Institute for hoof management.

Physical Examination Findings: At presentation, the filly displayed an extremely small stature estimated 110 cm at the withers. The filly was known to have fused left tarsus and osteoarthritis on right carpus. The filly was 4/5 lame (AAEP scale) on both forelimbs. The front hooves were extremely deformed characterized by significantly small size, dorsal hoof wall defects due to partial resection, excessive heel height, broken forward pastern axis, poor sole quality, and significant hoof wall separation.

Diagnosis: Severe chronic laminitis, bilateral, forelimbs.

Rehabilitation: Throughout the three year rehabilitation, the filly was managed with therapeutic trimming and shoeing using a method developed at the Epona Institute that attempts to restore hoof health by trimming the hoof according to landmarks related to the boney column [1,2]. The Epona approach to trimming and shoeing is also guided by Metron software [3] analysis. Upon arrival at the Epona Institute, radiographs of the front feet were taken. Banana shoes were then removed. The analysis of the Metron parameters at 2 weeks intervals was used to guide trimming and shoeing. The Epona approach is based on trimming and shoe placement utilizing a three dimensional technique which allows visualization of the distal phalanx within the hoof capsule using external landmarks proximal to the hoof associated with the bone column.

The heels were trimmed so that the most caudal aspect of the heels was level with exfoliated, healthy frog. In most cases, the sole was trimmed conservatively or not trimmed at all. Caudal

support of the arch and sole was achieved by evenly packing the frog commissures and sole from the frog apex to heel with packing material.

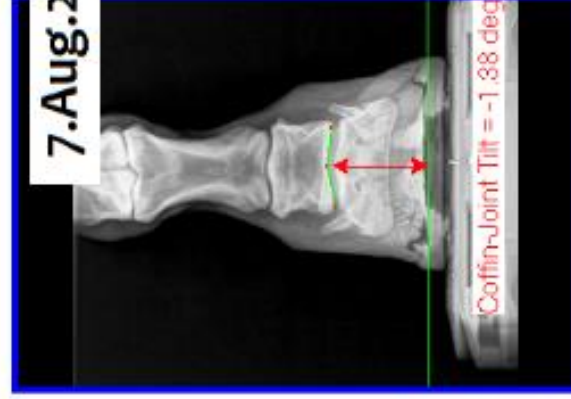
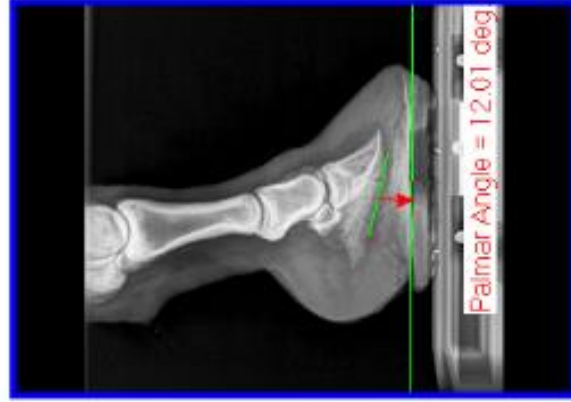
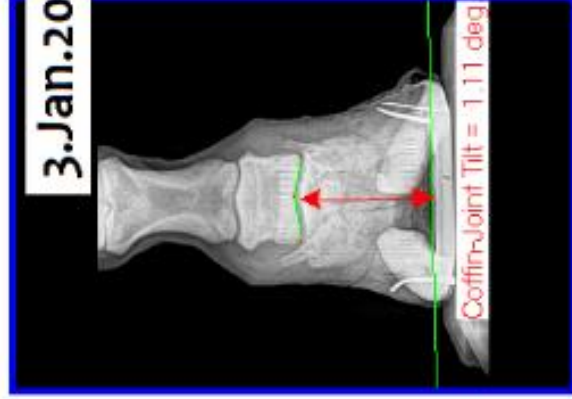
In this case, a major goal of each trim was to safely reduce the palmar angle to attempt to restore this parameter to a more normal value. Medial-lateral balance was evaluated by referencing the axis of the distal interphalangeal joint and deviation from parallel was then improved by trimming and/or adding glue to restore a distal interphalangeal joint axis more parallel to the ground. Alterations in palmar angle, as well as in medial-lateral balance were limited due to the past history of the horse. The goal was to maintain comfort and freedom of movement at walk, trot and canter rather than striving for an ideal hoof conformation. Once the hoof was trimmed and packed, the composite shoe was set and methacrylate glue was used to attach the shoe to the hoof capsule in a manner similar to previous reports. Once the horse was stable the filly was trimmed and shod on a four weeks intervals.

Follow up and Assessment of Outcome: Over the next three years physical parameters of the hoof and the trim were followed using Metron to measure radiographs at each shoeing. Upon presentation, initial measurement of palmar angle of the left front (LF) was 40.1 degrees and of the right front (RF) was 34.2 degrees. These were quickly reduced: once out of the banana shoes and into the Epona system, the palmar angles have been maintained over the past 31 months at values of 18.5 degrees for the LF (with standard deviation (SD) of 1.4 degrees), and 13.7 degrees for the RF (with SD of 2.4 degrees). These are averages of eight samples taken between Jan 2013 and August 2015. While these palmar angles are higher than we would like to see in a normal horse, we have been able to maintain this horse stably over the past 31 months. The mare remains sounds and displays all normal gaits in the pasture.

Using the Palmar Metric [5] we are particularly concerned about the loss of vertical depth of distal phalanx in this case of severe laminitis, which can affect longevity. Over the three year period of treatment, this metric dropped from an initial average (RF + LF) value of 4.24 (already very low for a 3 year old) to an average value of 2.63. This change represents about a 60% greater decline than norms suggested by the previous palmar metric research.

## References

- [1] M. Craig, A Modern Look at the Hoof, Outskirts Press, 2014,
- [2] M. Craig, and M. Burd, "Long Term Study Of Rehabilitation From Laminitis In 29 Horses Utilizing Composite Shoes." Proceedings of the 5th International Symposium on Rehabilitation and Physical Therapy in Veterinary Medicine, Minneapolis, MN, 2008.
- [3] EponaTech LLC, Metron-DVM User Manual, Version 7.05, [www.Metron-Imaging.com](http://www.Metron-Imaging.com), 2013.
- [4] M. Burd, J. Craig, and M. Craig, "The palmar metric: A novel radiographic assessment of the equine distal phalanx." in the Open Veterinary Journal Vol. 4(2) (2014): 78-81.



3.Jan.2013 (before)

7.Aug.2015 (after)