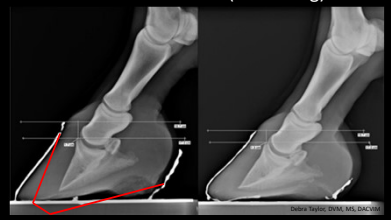
Reversing Hoof Capsule Rotation and Distal Descent (P3 Sinking)

Pete Ramey

Reversing Hoof Capsule Rotation and Distal Descent (P3 Sinking)



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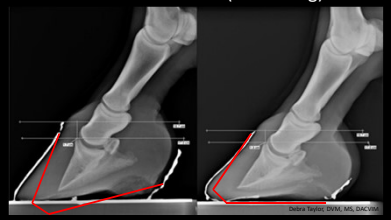
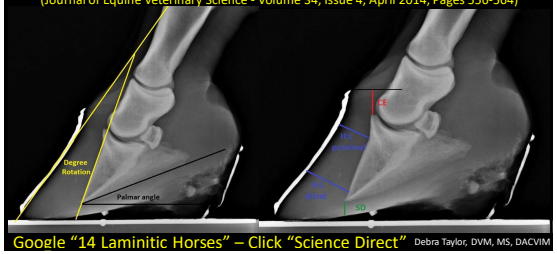
Reversing Hoof Capsule Rotation and Distal Descent (P3 Sinking)



Pete Ramey

Clinical Outcome of 14 Obese, Laminitic Horses Managed with the Same Rehabilitation Protocol

(Journal of Equine Veterinary Science - Volume 34, Issue 4, April 2014, Pages 556-564)



Google "14 Laminitic Horses" – Click "Science Direct" Debra Taylor, DVM, MS, DACVIM

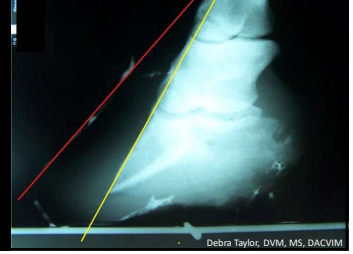
Case #1: Right Forelimb

-7 months duration-

Debra Taylor, DVM, MS, DACVIM

Lamellar separation, lamellar wedge, and sinking can occur anywhere – toes, quarters, heels…

I find that there is no better or worse place for lamellar separation to occur. It's all very serious.



Debra Taylor, DVM, MS, DACVIM

Farrier/Veterinarian Teamwork is Critical

Radiographs – Management of inflammation and pain

Diagnosis – just to give you a toehold with owner compliance to nutritional changes and adequate trim/shoe cycles.

Diagnosis and treatment – PPID, IR, GI ulcers, really any ailment can/does contribute to weakness of the lamellar connection.

If EMS, IR or PPID diagnosis, then every bite should have less than 10% sugar + starch combined with no more than 6% total starch.

Mineral Balancing per NRC Guidelines

Custom
Balancing to regional averages
Buckshot Method – California Trace Plus (my personal favorite)
Plain white loose salt

Vitamin E Supplementation
Prebiotics and Probiotics

"Feeding the Hoof" article at Hoofrehab.com

Mechanically Speaking…

In a nutshell, to grow out hoof capsule rotation and reverse distal descent/sinking:

1) Unload the walls
2) Protect the solar corium.
3) Establish heel height by prioritizing flat and heel-first impacts.

But… (Lotsa Buts…)

1) Unload the walls.

This removes the shear forces from the laminae, then allows the coronet to relax distally toward a more normal position relative to P3. This also allows better connected wall/laminae growth from the coronet, down.

Perfect, right?
(except that you just overloaded the solar corium, too)

Dang.

Sole thickening, better-connected wall/laminae growth, and CE correction usually occur simultaneously. So the hoof capsule actually tends to get SHORTER as the sole thickens.

2) Protect the solar corium.

Sole must be either *thick* or protected.

For CE correction and the reversal of hoof capsule rotation, sole support is essential, but ALL sole pressure must be released whenever the foot is in flight or otherwise unloaded!

"Protection" can include barefoot on soft terrain, depending on the current sole thickness. Also boots with padded insoles, tape-on pads or VERY thoughtful shoeing packages with tight trim/shoe cycles (ideally 4 weeks).

Easyboot Glove With Soft Gaiter

Mods:

Toe Slot
Heat Fitted
Breakover Mod
6mm padded insole

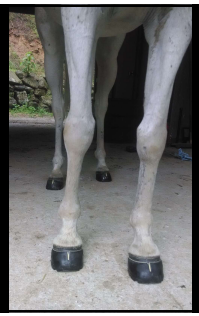
Power Strap
(not shown)

Easyboot Glove Glue-on Shells

Application and modification details at HoofRehab.com

Click "Articles"

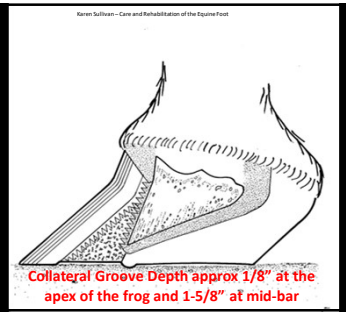
Click "Modifications of Easyboot Gloves and Glove Glue-On Shells"



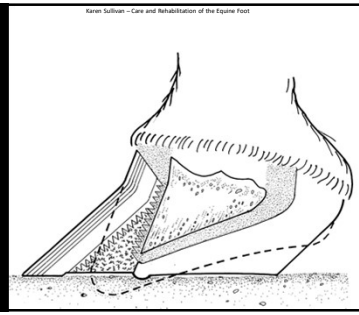
3) Establish heel height by prioritizing flat and heel-first impacts.

Toe-first compensation is the #1 enemy. There is basically no way to reverse hoof capsule rotation or improve CE on a horse that primarily loads toe-first.

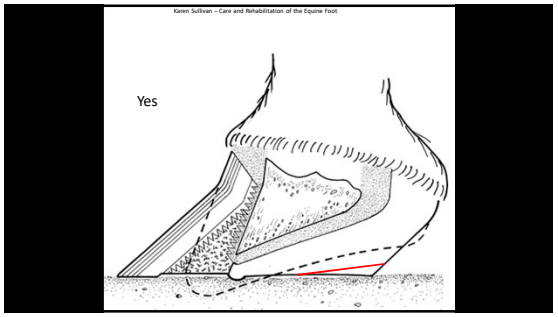
Compensation by side-loading the foot is the #2 enemy.

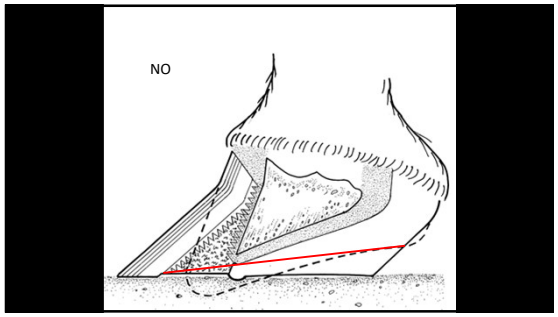


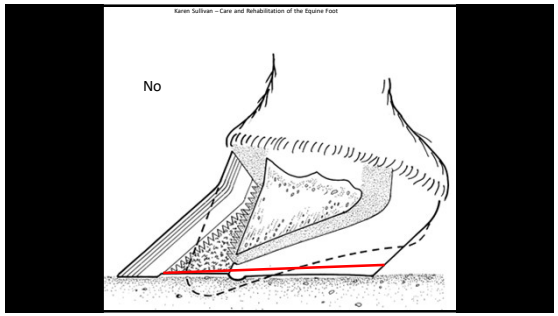
Collateral Groove Depth approx 1/8" at the apex of the frog and 1-5/8" at mid-bar

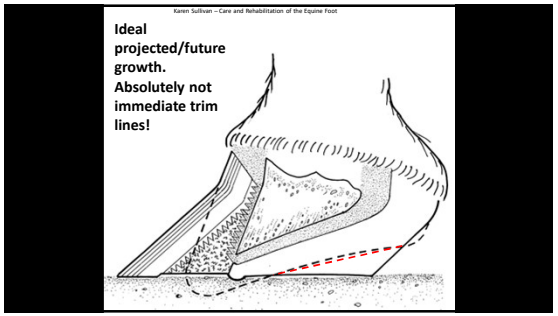


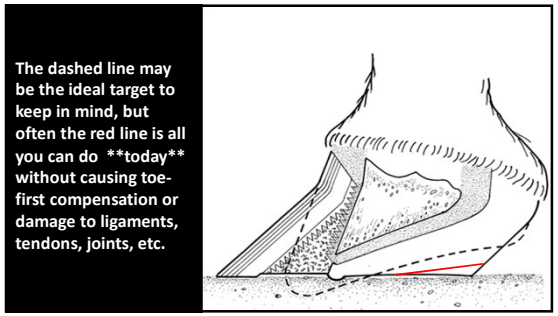

amellar wedge gets narrower as well-connected walls/laminae grow down.

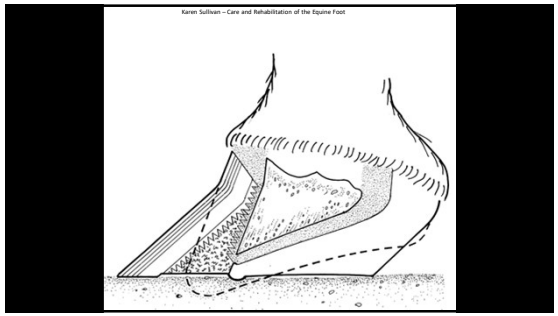

Karen Sullivan – Care and Rehabilitation of the Equine Foot
Yes

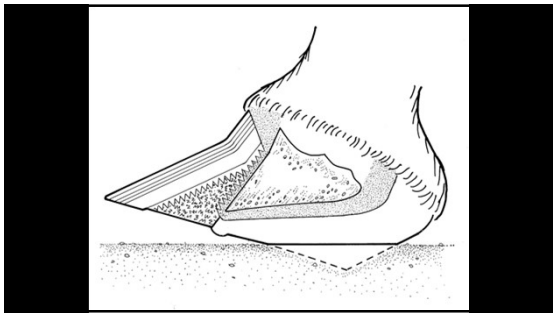

NO

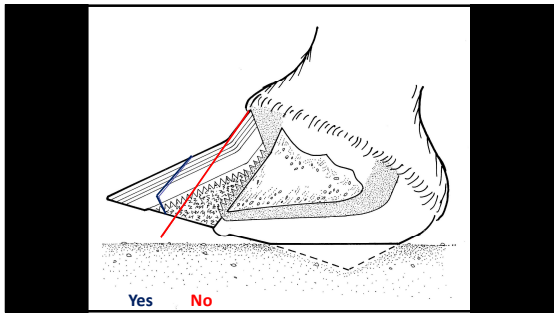

Karen Sullivan – Care and Rehabilitation of the Equine Foot
No

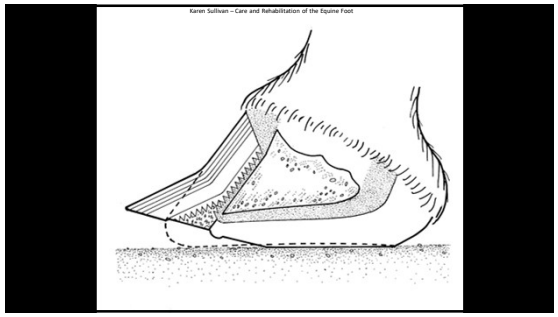

Karen Sullivan – Care and Rehabilitation of the Equine Foot
Ideal projected/future growth. Absolutely not immediate trim lines!

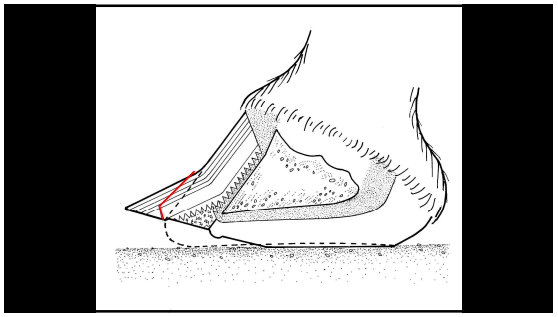

The dashed line may be the ideal target to keep in mind, but often the red line is all you can do **today** without causing toe-first compensation or damage to ligaments, tendons, joints, etc.

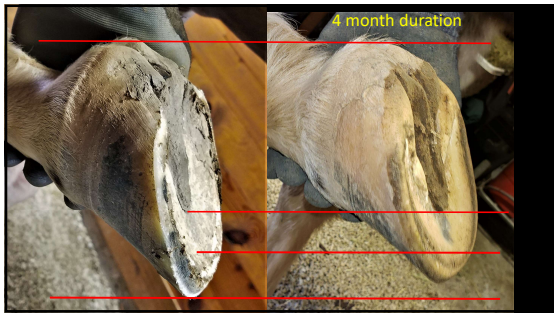

Karen Sullivan – Care and Rehabilitation of the Equine Foot

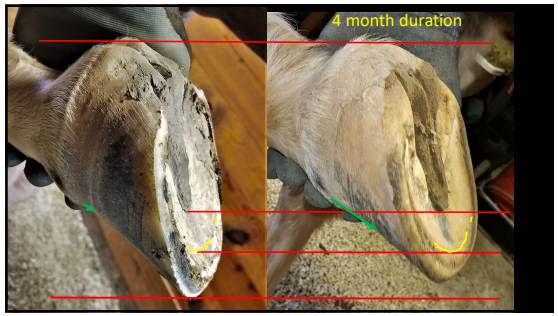


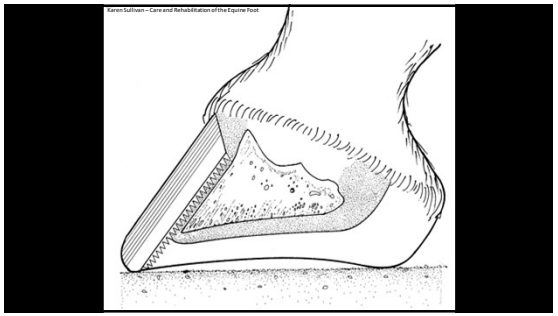

Yes
No

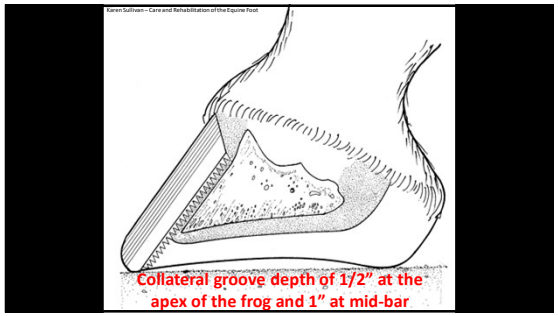

Karen Sullivan – Care and Rehabilitation of the Equine Foot

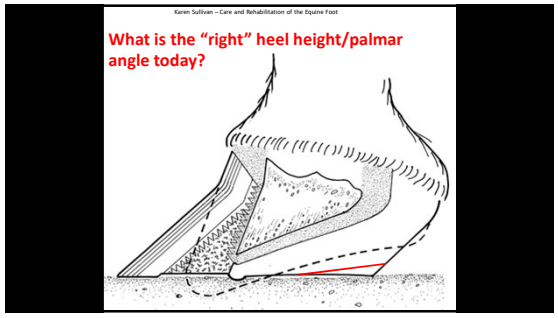



4 month duration

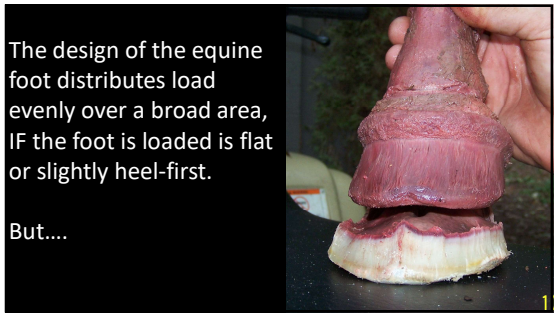

4 month duration


Karen Sullivan – Care and Rehabilitation of the Equine Foot


Karen Sullivan – Care and Rehabilitation of the Equine Foot
Collateral groove depth of 1/2" at the apex of the frog and 1" at mid-bar

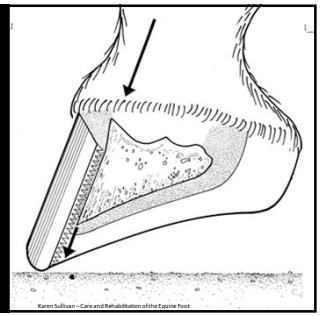

Karen Sullivan – Care and Rehabilitation of the Equine Foot
What is the "right" heel height/palmar angle today?


Horses tend to wreck themselves AND heal themselves while moving, not while standing still…
… so I tend to make heel-height decisions based on how the horse moves, rather than how the horse stands


The design of the equine foot distributes load evenly over a broad area, IF the foot is loaded is flat or slightly heel-first.
But….

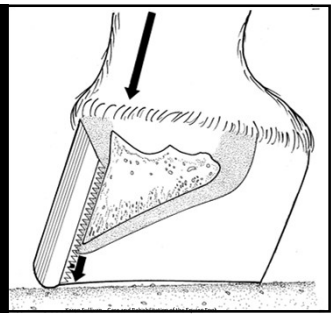
Beware the destruction caused by trimming heels too low….

(compensative toe-first impact and load)



… And the equally destructive mechanics caused by leaving heels too high.

The "right" heel height is the ultimate tightrope walk



With the primary goals of comfort and flat impacts (at walk) and flat or heel-first impacts (at faster gaits), I establish heel height/palmar angle based on:

1) Minimum 1/2"-5/8" (12-15mm) sole thickness – sole as a guide?
2) Stance
3) Movement
4) Response to ***offer of*** forward stretch
5) Subjective evaluation of frog health and digital cushion integrity – How much frog pressure will the horse voluntarily bear without starting to compensate toe-first?
6) Wear pattern
7) Learning from previous *mistakes* with the individual foot/horse

The "right" heel height changes as the frog and digital cushions strengthen.

Same foot – 9 month duration

Agir-Pro Ape Plex 10cc Luerlock Syringe

Stainless steel blunt tip Luerlock dispensing needles
12 gauge

8 ounces Generic Desitin
(40% zinc oxide cream)

2 teaspoons
Copper sulfate powder

Details at HoofRehab.com / thrush

Ensure that picking, flushing and treatment goes all the way to the bottom of the central and collateral sulci

The following 5 slides were videos showing how to evaluate the flexion of the front limbs as an indicator of the heel height/palmar angle that will work best for the horse's current condition.

Great mover that readily straightens limb and enjoys the stretch predicted a need for a 3-5 degree PA

High RT, normal LT, bilateral navicular case.

Resistance to straightening the carpus predicted a need for a 5-8 degree palmar angle.

Good mover, 5 degree PA, spent night in stall.

Slightly stiff, but enjoys stretch. Needs more turnout, stretching, warmup exercise and cooldown, but not necessarily a longer heel.

Best example of a normal reaction to being offered the opportunity to stretch.

High RT, normal LT, bilateral navicular case.

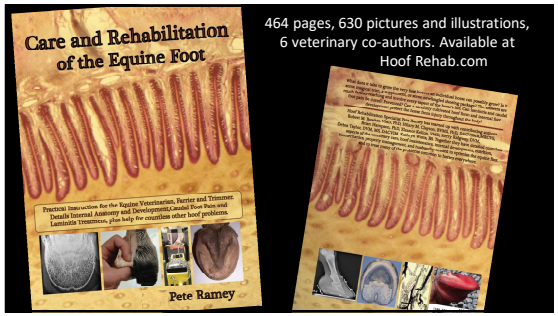
More extreme resistance to straightening the carpus predicted a need for a 10+ degree palmar angle (club foot).

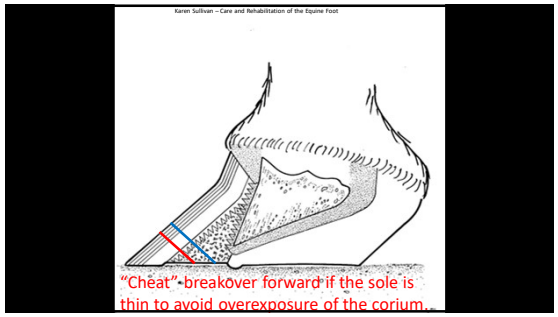
Trimming this foot to a 5 degree palmar angle would likely cause pain and damage.

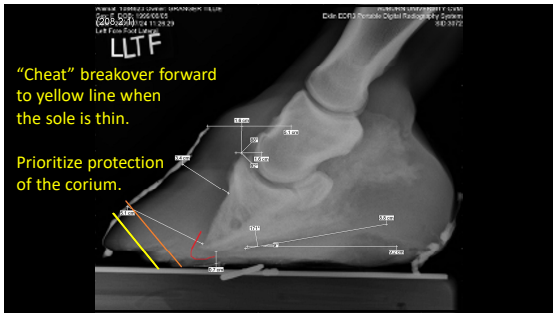
I establish heel height/palmar angle based on:

1) Minimum 1/2"-5/8" (12-15mm) sole thickness
2) Stance
3) Movement
4) Response to ***offer of*** forward stretch
5) Subjective evaluation of frog health and digital cushion integrity
6) Wear pattern
7) Learning from previous *mistakes* with the individual foot/horse

8) Don't forget #7 !!! Pay attention to post-trim movement and pre-trim wear patterns. Interview the owner/rider.
Don't fall into ***Habit***




Karen Sullivan – Care and Rehabilitation of the Equine Foot
"Cheat" breakover forward if the sole is thin to avoid overexposure of the corium.


LLT F
"Cheat" breakover forward to yellow line when the sole is thin.
Prioritize protection of the corium.