

A challenging case of laminitis rehab By Andrew and Nicky Bowe

(pictured below Cotton Socks right fore before and during rehabilitation)



The primary aim of laminitis rehab is survival of the patient, which is possible even in serious cases so long as the underlying causative factors are removed from the system. Return to pre-laminitic athletic abilities (not just 'paddock soundness') is, however, dependent on the replacement of damaged laminar tissue with a pristine bond, whilst concurrently preventing collateral damage to the dermal and boney structures during the recovery process. This is best achieved by total resting of the laminar bond from any weightbearing pressure.



In this case, Cotton Socks is a pony that spent several months undergoing barefoot rehab at Mayfield. She was quite a challenging case with a high degree of pedal bone rotation in her front hooves. Analysis of an individual case study such as this is an effective way to show the rehabilitation program in action, but it also invokes the power of hindsight; things that could have been done better and done earlier.

Enter barefoot rehabilitation. (pictured left Cotton Socks after arrival booted in our rehab shed).

All laminitis cases share the same pathology - inflammation and subsequent breakdown within the laminar bond – but they are each a

unique combination of the sum total of causes versus existing structures. Likewise, the program of barefoot rehabilitation is generic. Complete recovery is only possible by adhering to the full program, but treatment parameters need to be customised for each case.

Remove the insult

Laminitic hooves are symptomatic of metabolic and mechanical upheaval. Successful rehab is reliant upon determining and then removing the underlying causes.

Metabolic – restoring an equine friendly diet

All equines have a gastro-intestinal tract designed to draw nutrition from high fibre, low quality feed, so increasing fibre consumption and removing concentrates (treats, grains and grain products) is imperative for laminitis recovery. Don't unquestionably rely on what savvy feed bag labels suggest. In an unregulated industry, buyer beware.

Cotton Socks' diet was predominantly pasture hay (not ryegrass, lucerne or clover) supplemented with additives to help break the chain of inflammation, including MSM, magnesium chloride, vitamin E and omega 3 oils in the form of freshly ground flaxseeds.

One possible reason for Cotton Socks' slow recovery was long term phenylbutazone medication. Whilst this anti-inflammatory is an important part of initial treatment, long term use appears to retard laminar bond recovery. Pain relief was instead facilitated herbally with devil's claw and white willow.

Many horses (especially ponies like Cotton Socks) are metabolically challenged by the time they succumb to laminitis and may need their diets modified permanently.

Mechanical - unloading a compromised structure

(pictured Radiograph of Cotton Socks' club foot illustrating a great degree of rotation; her right fore before and after the first trim)



Complete recovery is only possible by fully removing the laminar bond from any vertical weightbearing pressure for the duration of hoof capsule replacement.

For Cotton Socks, this included removing weight bearing (both static and dynamic) from in front of the leading edge of the pedal bones (hence the need for x-ray vision). Weightbearing responsibilities instead were spread across the remainder of the ground surface of the hoof, particularly the frog, heel platforms and caudal sole.

The basic rules of physics apply to the equine hoof in both soundness and crisis; that is, the larger the surface area of weight bearing, the smaller the concentration of pressure entering into the hoof.

(pictured below Cotton Socks' left fore before and after first trim showing a broken laminar bond)



The club foot complication

The main reason Cotton Socks was a difficult case to rehab is because she has a significant club foot. This means there is greater pre-existing tension within the flexor apparatus of the affected limb with the flexor tendon relentlessly pulling on the pedal bone and putting excessive pressure on the laminar bond, particularly its origin at the coronet band around the front of the hoof. This is bad enough for a 'healthy' club foot, but diabolical for a laminitic club foot.

From the outset, it was necessary to monitor the coronet band at the front of the club foot for evidence of the commencement of healing which appears as a ledge when the new laminar bond is much tighter than the damaged one.

When this ledge failed to appear, it meant that the coronet band was becoming ingrown and removal of weightbearing pressure at the ground surface alone was not going to be enough to release the trapped laminar structures. The dissociation of old from new had to be exaggerated via a horizontal groove beneath the coronet band.

When even this procedure failed to release the ingrowing hoof wall, the remaining old hoof wall right up to the coronet band had to be removed by careful grooming with a razor sharp loop knife (pictured right).

Dissociation with a horizontal groove beneath the coronet band should be a matter of course for a laminitic patient with a club foot at the start of the rehab program.



Treat the upper body



Even though a club foot manifests at the ground floor, it is not of the hoof. Therefore, to alleviate the chronic and damaging pressure on the laminar bond in Cotton Socks' club foot, it was necessary to release muscle tightness in her upper body.

It is fortunate indeed that horses are very willing participants in a process being called 'passive physio' which involves them willingly holding a set posture for extended periods whilst feeding from a restrictive "slow feeder" hay net. (pictured left)

In Cotton Sock's case, release came from her having her front end elevated on a ramp, whilst reaching over and down to a hay net on the far side of a retaining wall.

She was fed in this position morning and night and appeared quite comfortable standing this way. Over time and in conjunction with magnesium supplementation, the muscle firing patterns changed and the tight fascia released. (please note that magnesium chloride seems far more effective in these cases than traditionally used magnesium oxide).

Provide hoof protection

Initially, hoof boots with thick soft pads were used to optimise comfort, maximise the surface area of contact and allow her to choose her own resting angles.

As rehab progressed and she began moving more freely, alternative protection was required for the club foot because it was further compromised by an old injury that was rubbed by the boots. The sensitive part of the hoof was instead covered with a soft polyurethane tip. Problem solved.

(Pictured right the poly tip)



Encourage movement

As soon as her hooves had regained a measure of stability and were comfortable and securely supported in padded hoof boots, she was encouraged to move by opening up space in front of her (an important note here is to encourage but never force movement; recovering patients will start moving when they are ready).

Later, she was put into a loop paddock with other recovering rehabs to further encourage movement. Continual movement combined with ad lib grazing of grass hay appears to stabilise metabolism.

(pictured below: horses moving in a loop)

