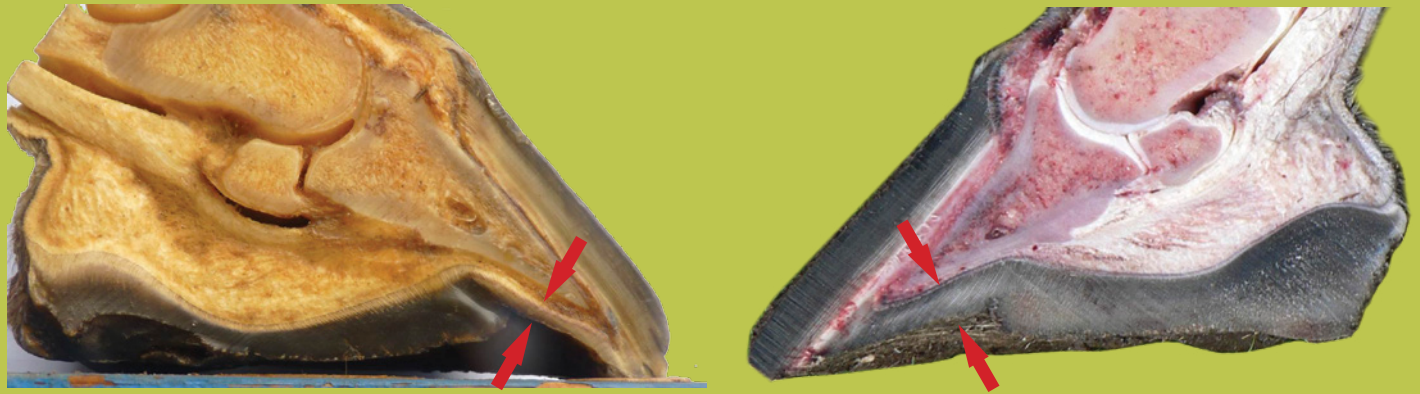


The 'Thin Sole' Dilemma



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Throughout the last two articles, we have discussed how flat hooves on horses are far from ideal. There is still more to the story though, because flat hooves are even more problematic if the soles are thin as well. Even if a horse has concave hooves it doesn't necessarily mean that it has good hooves either. Some concave hooves also have very thin soles.

Horses should be able to routinely slam their hooves into tough ground and move at speed over long distances without any discomfort. Their hooves should be the strongest part of the grand equine design, and they simply must have thick soles to protect sensitive internal structures; soles at least 10mm thick (see photo above right)

Nature designed hooves with an inbuilt safety margin – hooves that are just that little bit tougher than needed in case of emergency - for long term protection of the vital foundations. This is a good thing too, because hooves really need to be over-engineered to be able to accommodate the large forces generated by a human sitting on a horse's back.

Unfortunately, domestic horses which are required to carry a human generally do not have foundations as strong as they should be. In particular, they do not have soles thick enough to be ridden without some extra protection.

Some horses even have 'pathologically' thin soles, often less than 5mm and sometimes as thin as 2mm. This is simply not enough protection.

(See photo above left, a sagittal view of a extremely thin soled cadaver).

You will know all too well that you have a thin soled horse when it insistently steers itself away from hard or stony ground.

Likewise, when the ground goes from soft to hard, its stride will noticeably shorten and flatten.

When a hoof is upturned, the sole will flex under thumb pressure.

Thin soles are not only a problem on rocky ground, they can even be a limiting factor on dressage arenas, noted again by a short and flat stride that is not what it should be.

What causes thin soles?

Thin soles are not a normal condition for a horse and are caused by lifestyle factors that are far removed from normal living conditions.

• Environment

Horses originally come from cold but dry, high plains desert country. A constantly wet environment causes the keratin in the sole to be greatly weakened, meaning its connective strength and protective qualities are lost. Such hooves are susceptible to having their soles thinned by mechanical abrasion and keratin eating pathogens (see Photo 4)

• Genetics

It may be genetics that has produced a horse with thin skin. The whole hoof is simply an adaptation of skin, so if a horse has thin skin, it stands to reason that it will have thin soles. Two breeds that come to mind are thoroughbreds (especially chestnuts with white points) and appaloosas of the 'moth eaten' variety.

• Shoeing

Constant wearing of shoes (which are ironically put on to 'protect' thin soles), is arguably implicated in causing chronic thin soles through altered blood flow and lack of weight bearing stimulation.

This is especially the case when horses are shod too young before their hooves are fully developed (sorry guys, that would be anytime under about 5 years of age!). Shoeing stops hoof development in its tracks. How many horses get tougher hooves the more they are shod?

• Trimming

Continual trimming of the sole, especially misguided knife use to artificially create concavity when it can't be sustained by a hoof, is a common (yet quite easily avoidable) cause of thin soles. The outer skin of sole plane is a protective boundary that should not be crossed.

PROTECTING THIN SOLES

It is very important to recognise when a horse has thin soles and then provide adequate protection for them when it is being ridden.

For the best protection of thin soles, it is hard to go past hoof boots with soft rubber pads. Hoof boots seem to be the standard answer (and by now, probably the expected answer) from this author.

Far from being on the payroll from the hoof boot specialists at Easycare Downunder, the author sees on a daily basis just how well horses travel when they are wearing padded rubber hoof boots over thin soles. It just makes sense.

If you are shoeing your horse, you may get better solar protection by fitting some of the wide web, soft plastic shoes that seem to be an adequate short term solution because they have frog support and partially remove concussion from the equation.

Full sole pads placed between steel shoe and hoof have always been the mainstay for protecting thin soles, but this can only ever be a very short term solution because pads cause hoof walls to break down around the nail holes and actually make the sole even softer and thinner because of the 'sweaty' environment under the pad that is virtually impossible to properly manage, even with harsh agents such as pine tar.

Not a sook!

If your horse does have thin hooves, for the sake of its long term soundness, don't take notice of anyone who says your horse is just a sook and it will toughen up, so just get on and ride it. Hooves with thin soles striking hard objects such as rocks are at great risk of having pedal bones permanently damaged through pedal osteitis or even a fracture.

GROWING A THICKER SOLE

The best trim in the world can't necessarily fix thin soles. The solution lies in growing a thicker sole.

In fact, trimming can't fix thin soles beyond ensuring the trimmer leaves that sharp hoof knife in its sheath and doesn't touch a knife or rasp to the sole plane. To help the trimming outcome, the owner is responsible for getting the hooves trimmed regularly enough so they remain functional. The answer is to be found in a horse's lifestyle – diet, environment and movement.



Photo 3 (above) – Flexing a thin sole



Photo 4 (above) – A wet and soft hoof.

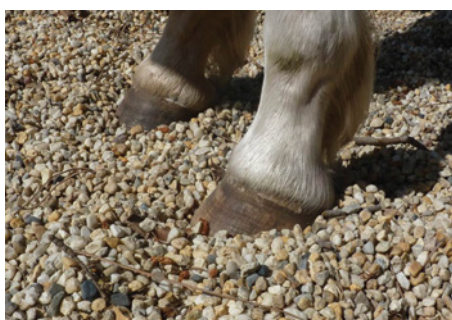


Photo 5 (above)
Hooves resting in a deep bed of pebbles



The best hooves are those of horses that move over long distances

Diet

Laminitic processes cause thin soles, so it is important that the sugar levels in a horse's diet are controlled. Horses are not meant to stay mud fat all year round. Unfortunately, more covering over the ribs (that would be fat!) means less covering over the soles.

Some thin soles are a product of long term mineral imbalances, especially when horses are living on pastures dominated by high oxalate content grasses (such as kikuyu and buffel). Vital minerals that are needed for hoof structure such as zinc, copper and magnesium may be deficient in a horse's system. Sometimes these minerals are in fact blocked by an excess of other minerals ingested from the pasture.

Mineral imbalances can usually be solved by simple supplementation and there are several effective mineral mixes available that are designed to aid hoof growth. For thin soled horses, look for a complete supplement that has more than just biotin and calcium, but also has a wide range of amino acids, vitamins and – most importantly – trace minerals.

Diet is a huge subject in itself and advice should be sought from a professional equine nutritionist.

Environment

If a horse is enduring life in a constantly wet environment, the best thing that can be done is to get its hooves to dry out for as long as possible every day.

If the resources are available, a good way to achieve this is to set up a night yard (preferably with a roof) that is 100 – 150 mm deep with round river pebbles that are free draining. Hooves can dry out and significantly toughen up this way (see photo 5)

Movement

Horses which have the best hooves are generally those that are employed to do what horses do best – move large distances. But the secret is constant movement, not just one long ride once a week or half an hour lungeing every night. This is why endurance horses and trail ride horses that work most days of the week usually have healthy hooves and thick soles.

Constant movement is achieved by keeping horses in large paddocks in groups. If this is not possible, it may be practical to set up a track paddock that incorporates a continual loop and gives horses a reason to keep moving, even if only around a relatively small area.