

Better Than Barefoot?



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It's an iconic sound alright; a metal shod horse travelling on hard ground. Some would say it's music to a horseman's ears.

But what you're hearing is high frequency vibration; the tiny portion of vibrating energy that escapes the impact zone and disperses through the air. Most of the vibration, however, travels into the hoof.

So what's the big deal about a little bit of vibration?

Continual, repeated exposure to vibration is cumulatively damaging to living tissue. It disturbs the circulation of the tiny peripheral blood vessels, affecting the health of bones, connective structures, muscles and even nerves.

The higher the frequency, the more damaging is the vibration.

Metal has a crystalline lattice structure that is rigidly organised and not very elastic, which means that impact applied to one side passes straight through and out the far side as vibration that resonates at a high frequency.

Energy vibrating through horseshoes is amplified by concentration through a small surface area (the hoof wall is only about 10% of the total ground surface area of a hoof).

Combine this with the concussive shockwave being malabsorbed (the equine hoof is designed for concussion to be absorbed mostly through the frog and digital cushion and only minimally through the hoof wall) and add to the equation the weight of rider and saddle and... it just can't end well.

Fortunately, modern technology is gifting us better options than hard shoes on hard ground.

The Australian summer stills rocks with ground no less hard than it has always been, but in recent years the old familiar clip clop has been somewhat muffled.

More and more horses are spending the dry months in soft and flexible shoes made mostly from polyurethane (known as polyshoes).

Why is plastic better than metal on hard ground?

Plastics are viscoelastic which means their internal structure has negligible organisation, long flexible molecules and empty spaces so there is not a direct transfer of energy from one side to the other. Any vibrating energy which enters plastic is effectively dampened down and any vibration that leaves the structure is very low in frequency and amplitude.

Poly shoes are not new

Polyshoes have been around for well over a decade now, but the early models were quite limited in their application and success. They were either too soft to block and hold and therefore secure nails, or they were too hard and became concussive and slippery.

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Fortunately, a few years ago the Easycare company (famous for pioneering hoof boots) began to branch out into manufacturing polyurethane horse shoes, mainly for gluing on; a natural progression from their glue on boot bases (called shells) that had revolutionised endurance riding.

One particular model they released is called the Easys shoe N/G which could be either nailed or glued (hence the name N/G). This shoe is predominantly polyurethane but contains a sliver of steel encased within each branch; a soft and fully flexible shoe with just enough steel to hold a nail head so it can be clenched against the hoof wall.

The Easys shoe N/G has been a runaway success story, overcoming the problems that existed with earlier models of nail on polys. They had invented a polyurethane based shoe that was soft enough to dampen impact on hard ground, but would still hold tight clenches right to the end of the shoeing cycle and hooves wearing these shoes would not suffer hoof wall breakdown after subsequent reshoeings.



Please note that the author is not getting any kickbacks from the company that makes these shoes.

Since beginning to use the Easyshoe N/G, the author (who works full time as a farrier) currently has about 200 of his client's horses wearing them in numerous equestrian disciplines including dressage, eventing, jumping, trail, school, pony club, stock working and camp drafting to name a few.

Polyshoes aren't perfect yet (what is?), but there seems to be a lot of happy horses and happy jockeys.

The benefits of polyshoes

● Improved movement

There is no doubt that horses move better when they are wearing soft shoes that cover most of the ground surface of their hooves. At risk of sounding clichéd, it really does put a spring in their step.

Interestingly, improved movement has also been noticed in horses working on soft dressage arenas. There must be more to this story than just the hard ground.

● Accelerated hoof growth

It seems that polyshoes significantly stimulate hoof growth. There is certainly no need to add biotin. A six week shoeing cycle would be the absolute maximum and refitting is usually needed every five weeks. If you think a good shoeing job is one that lasts for six months, then it's likely that polyshoes are not for you.

Fast hoof growth is good. It grows out the old nail holes before the next shoeing.

There are possibly two factors accelerating hoof growth, both of which are related to the vibration.

When the vibration is dampened as it travels through the viscoelastic structure, it resonates at a significantly low frequency (hit a polyshoe with a hammer and there is a dull thud, not a high pitched ring). Whilst high frequency vibration is known to be damaging to living cells, low frequency vibration may actually be stimulating and regenerative.





IMAGES A, B, C, D, E & F: Plastic or poly shoes are not perfect yet, but they are proving to be a worthy alternative to metal, especially on hard ground.

The Easyshoe N/G (nail or glue) flexes and expands, can be nailed on as a normal shoe, screwed on or glued. The author has around 200 of his client's horses wearing them in numerous equestrian disciplines, from pony club and eventing to dressage and camp drafting.

Images A to E courtesy of Mayfield Barehoof Care Centre. Image F courtesy Easycaredownunder and Hoof Boots Australia.

There is also a bit of a misnomer when we say that energy is 'absorbed' by a soft plastic structure, because energy is never used up or lost, it is only ever transferred into another form (in this case heat), momentarily stored and then moved somewhere else. Maybe this perpetual warmth also stimulates extra growth.

● Better hoof growth

Hooves that are repeatedly shod with polyurethane seem to grow a healthier and thicker sole. Often, this solar growth is white as snow and quite robust, which the author assumes is a sign of optimum health.

Why a thicker sole?

The exact reason behind this phenomenon is unknown, but it could arise from the low frequency vibration that stimulates cellular division, or it could be due to the flexibility, when the shoe expands immediately under load and then springs back when the hoof leaves the ground, thus stimulating the mechanism of the caudal hoof which may add extra material to the solar 'pool'.

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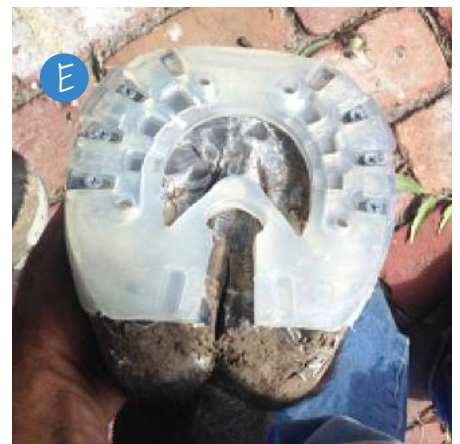
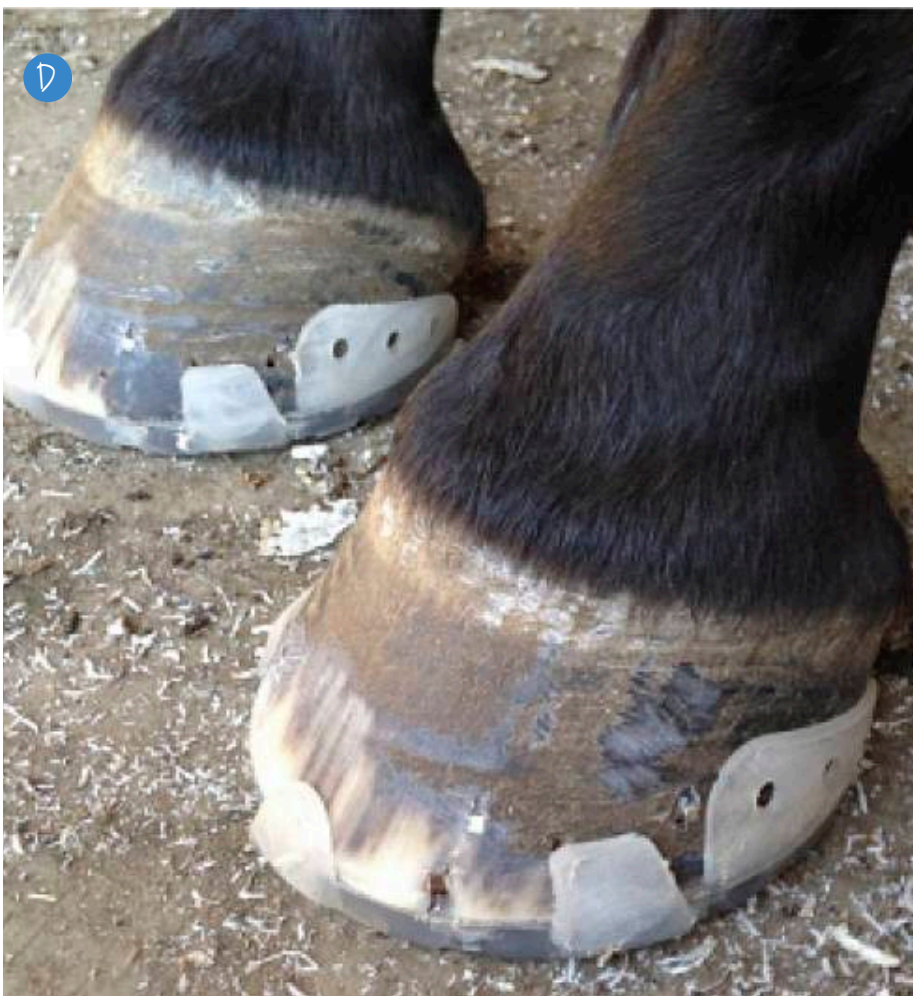
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IMAGES A & B: Polyshoes expand under load and nearly always go back on for several refits.

IMAGE C: Horses with chronic laminitis and unhealthy thin soles have grown sole like healthy horses when shod for a while with polys.

IMAGE D: Polyshoes are exceptionally easy to use because they mould to the outline of the hoof.

IMAGE E: Polyshoes can also be screwed on.

All images courtesy Mayfield Barehoof Care Centre.

There have been numerous horses that have carried the battle scars of chronic laminitis in the form of unhealthy thin soles and when these horses have then been shod for a while with polys for simple protection in the paddock, not expecting their hooves to ever recover, they have grown sole like healthy horses. This is hard to ignore.

The hoof walls also seem to grow healthier and more supple and old nail holes seem to be more benign than they are when wearing metal shoes. Maybe this is because the shoe flexes more than the hoof wall, so most of the pressure on the nails is transferred to the shoe and away from the wall.

● Comfort 24/7

Horses are on their legs most of the day. In fact, apart from some short stints of quality sleep laying down, they mostly sleep standing up. This is only possible because they evolved with a stay apparatus that enables them to lock their legs and remain standing with no muscular effort.

It's a neat trick, but a horse needs comfort in its caudal hooves because it literally stands down into its frogs to fully engage the stay apparatus.

Polys shoes appear to provide enough 24/7 comfort that horses are able to fully expedite muscle and connective tissue rest. Maybe this relieves local inflammation.

The author works with numerous musculoskeletal therapists who are regularly reporting that horses with niggling soreness, which have been changed to wearing polys on hard ground, have shown considerable improvement. Consensus suggests that it's due to improved and sustained comfort levels.

● Practicality

Polys shoes are exceptionally easy to use. They mould to the outline of the hoof so no anvil is needed (not that poly can be shape-changed with a hammer – that is unless there is more metal than poly which would defeat the purpose anyway).

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IMAGE A & B: Polyshoes can also be glued on which has its place, especially with poor quality hooves. But glueing can be expensive and time consuming, and glues dry quite rigid, which negates the flexibility of polyshoes. Images courtesy Easycaredownunder and Hoof Boots Australia.

IMAGE C: Metal shoes on hard ground expose the hoof tissues to high frequency vibration - you hear it as a clip-clop, but most travels into the hoof, cumulatively damaging living tissues. Image source: www.shutterstock.com.

IMAGES D, E & F: Polyshoes are still very much first generational and, whilst proving already to be a worthy alternative to metal especially on hard ground, they will only get better and cheaper as market forces continue to strengthen demand. Images courtesy Easycaredownunder and Hoof Boots Australia.

