



# Non-Metal Horseshoes: Knowing Why To Use Them Is As Important As Knowing How

Flexibility, concussion dampening among benefits touted by developers and users of these products

[Pat Tearney \(/authors/18-pat-tearney\)](#)

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While non-metal horseshoes may never make up a huge share of the overall market, they have carved out a well-established niche that is substantial enough that it makes sense for farriers to know how and when to use them.

Gary Werner, an experienced farrier from Smithtown, N.Y., believes it is as important to know why you might want to use a particular non-metal shoe as it is to know how.

“You really need to think about why you want to use these,” says Werner. “There are benefits to using these shoes, but some are going to be better for certain situations than others.”

Generally, non-metal horseshoes are used for one of, or a combination of reasons, including:

- To protect ground surfaces or footing, such as paved streets, sound stages, etc.

- To reduce concussion or vibrations from levels associated with metal.

- For weight reduction.

- For increased hoof flexibility.

- In therapeutic situations, particularly when a lightweight, glue-on alternative is preferred.

- In performance or racing situations, when a horse is not able to compete in metal shoes.

- As an “in-between” approach when an owner prefers that a horse be barefoot, but finds that it

needs some form of protection or support.

Werner developed a specialty with non-metal horseshoes while providing hoof care for horses used in performances at places like Carnegie Hall and Radio City Music Hall in Manhattan, where steel shoes couldn't be used on expensive stages.

But while he might have started using the shoes to protect expensive wooden floors, he also noticed that they helped some horses move better and seemed to reduce lameness.

"The key is the dampening effect these shoes have on vibration up the leg," he says. "Basically, the shoe winds up dissipating more of the energy of impact that would usually be absorbed by the limb and soft tissues."

## Farrier Takeaways

It is important to give some thought to why you want to use non-metal shoes. What advantages do you think they will have for the horse? Are your goals short term or long term?

Remember that non-metal shoes are not all the same. They have varying degrees of flexibility and hardness that should be taken into consideration for each case.

Applying non-metal shoes can be tricky. Take time learning to apply, modify and remove them.

Generally speaking, non-metal shoes are more expensive than metal shoes. That should be taken into consideration in your pricing and should also be discussed with clients ahead of time. A "cost-benefit" type of discussion may be helpful.

Werner emphasizes that it's important to understand the differences between various non-metal shoes that are out there.

"This is definitely not a case of one size or type fits all," he says. "You need to think about whether you have long range goals for using the shoe or short term goals. Are the feet right for this particular kind of shoe? Do you want to be able to nail the shoe on, or do you want to glue it? You need to think about the environment."

In general, plastic or urethane shoes are going to be more flexible than metal shoes. But Werner notes that some are more flexible than others. If you want to maximize the natural flexibility of a horse's foot, a very flexible shoe might be your shoe of choice. But if you want to restrict flexibility, perhaps for a therapeutic reason, a firmer urethane shoe might be best.

One reason Werner says it's important to do your homework on the shoes is so that you can explain

the possible benefits, as well as limitations of the shoes to clients.

"We have had some really excellent results with urethane shoes on some horses, particularly those that have pathology or bony changes," he says.

## Keeping Horses Competing

The higher cost of non-metal shoes is often cited as a big reason they are not more widely used. But cost is less of concern for owners of high-end horses when non-metal shoes may be able to allow a horse to compete when it can't in steel shoes.

Curtis Burns, the Wellington, Fla., farrier who developed the Polyflex shoe emphasizes that he sees his product as an alternative rather than a mainstream shoe.

“I make a living in niche markets,” he says. “Realistically, I’m based in 1% of the high-end racing and performance horse world.”

Burns says that the majority of the time, his long-term goal is to get a horse out of his Polyflex shoe and back into steel.

“I don’t ever see urethane shoes taking over (from metal) because of the costs,” he says. “But you can’t be a one-trick pony. Urethane shoes have proven themselves to be a very effective tool and it’s important to know how to use them.”

Burns first developed the Polyflex, which is a urethane shoe molded around an adjustable wire skeleton, to help a horse compete after an injury. After that initial success, he says it was almost 2 years before he made another one for a similar situation.

Burns has been improving and using the shoes for more than 12 years now, but says they continue to be an alternative method of shoeing.

“I’ve always used them for a horse that has something wrong,” he says. “We actually spend a lot of time telling people who call us why this shoe may not be right for their horse.”

Burns says in developing the shoe, he was trying to mimic the hoof wall as closely as he could. He describes the Polyflex as more of prosthetic than a shoe.

“I wanted a compromise between letting the shoe wear out, but still making it through the shoeing cycle,” he says.

Location can be an important factor as well. Burns works in an area of the country where there are a lot of high-end sport horses, as well as racetracks. That means he’s in a good location to serve that 1% of the market he’s focused on.

Burns believes that one possible growth area for urethane shoes is treating angular limb deformities in foals.

## **Lighter Alternative To Aluminum**

Bill Kirkpatrick of Sound Horse Technologies says his company’s Flexx Shoe was aimed at a specific target. It was developed as a direct-glue alternative to forged aluminum shoes and for farriers who for one reason or another didn’t take to the firm’s Sigafoos Series glue-on cuff shoes.

Sound Horse Flexx shoes are made with high temperature, thermoset polyurethane. Kirkpatrick says this material allows the shoes to be the same size and shape as forged aluminum shoes, but 40% lighter. The shoes included an inner-wire to allow some shaping and will actually wear longer than aluminum shoes.

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**No two hooves are the same and no two horses have the same needs ...**

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The shoe is also much more “acrylic friendly” than some others with the addition of grABS technology utilizing ABS plastic pellets on the hoof side. Kirkpatrick notes tests indicate the acrylic bond is 4 to 5 times stronger than the original polyurethane tested.

Improvements in the shoes have included adding an abrasive grit to the lower portion of the shoe during the casting for improved wear and traction, while the new technology involving the foot surface of the shoe eliminates the need for a shoe prep.

“We look at farriers and figure time is money,” notes Kirkpatrick. “And what we have now is an easier product to use, is the same shape and size as aluminum, but significantly lighter and with much more bonding strength when glued in place.”

As is the case with most other non-metal shoemakers, Kirkpatrick emphasizes Flexx shoes are not meant to replace steel or aluminum, but are instead an alternative. Flexx shoes have been used successfully in sport horse, racing and therapeutic situations.

“They’re being used in Lexington, Australia and Japan quite a bit, so we’re starting to see some centers where farriers are talking about them to each other,” he says. “That’s the best way for the word to spread.”

## **A More Hoof-Like Shoe**

Some proponents of non-metal shoes claim that they are better for hoof health than metal, which makes them worth the higher cost.

Monique Craig of EponaTech, who developed the EponaShoe, believes that a big advantage of a composite shoe is that it mimics the natural flexibility of the hoof.

“The use of composite shoes is a no-brainer in terms of using material that is more synergetic with the natural mechanical properties of the hoof keratin,” she says.

“It helps in reducing some capsular deformities occurred by the hoof when in metal — but not all. It does help with concussion and may or may not help blood flow of the hoof, depending on the shoe design.”

Craig says a good composite shoe design is a compromise of sorts. It will provide needed support while allowing the hoof to flex, but not flex too much.

“For instance, adding a large amount of metal inside a composite shoe can lessen the advantage of flexibility,” she wrote in an article on using composite shoes. “There are also limitations on how much a composite shoe should flex. Too much flexibility may not provide support.”

Craig has been using composite shoes successfully for almost 20 years on a variety of horses, including high-end competitors. She emphasizes the importance of using the shoes correctly, and notes they cannot “fix” everything.

“There is no guarantee that a horse will stay sound for the long run while wearing composite shoes, especially competition horses,” she says. “I used to shoe a lot of competition horses, including Olympic horses in composite shoes. The problem stems from poor breeding practices (horses are no longer

bred for correct equine biomechanics) and poor riding methods (horses started too young and trained too fast).

“Finally, trimming and shoe placement are everything. No two hooves are the same and no two horses have the same needs.”

Craig believes the market for composite shoes may grow as owners and farriers become more accepting of them. She also sees an increase in their use by barefoot trimmers for horses that are not successful barefoot.

## **Before Problems Arise**

Katie Cosgriff Curry, a fourth-generation farrier from Big Timber, Mont., has found Duplo composite shoes useful in her practice. She uses them as an alternative for horses that don't do well in metal shoes, but also can't go barefoot.

Curry has bachelor's degrees in animal science and human biology, is also a chiropractor and is board certified by the International Veterinary Chiropractic Association.

Curry says that it is commonly understood that the hoof expands outward. But she believes the vertical movement of the medial and lateral sides of the hoof also is very important and isn't as well-recognized.

“Steel shoes limit the vertical movement and create more horizontal movement,” she says. “When a horse has a strong digital cushion, healthy frog and flexible cartilages, the outward expansion with steel shoes is not pathological. But when these structures are inadequate, the outward movement sheers off the heel material and creates a long toe and underrun heels.”

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An indication of this is a groove is worn into the expansion area of a steel shoe. When the digital cushion and collateral cartilages are healthy and functioning properly, they will expand in the top portion of the hoof as the heel strikes the ground, reducing the movement of the lower heel wall against the shoe. Deep grooves in the shoe are a sign that those structures are not functioning properly.

For a barefoot horse, very flat soles, with no cup, indicate that a barefoot horse might benefit from a composite shoe.

The Duplo shoe has a metal insert in the toe. Curry says the steel insert protects the blood supply in the toe area of the coffin bone, while the flexible plastic heel area allows the vertical movement of the hoof.

“One place where I really find them useful is when I work with a young horse and am starting to see some of these problems,” she says.

“With this type of horseshoe, the steel provides protection and stability, but you have more of the barefoot function in the rest of the hoof.”

Curry emphasizes the need to learn how to palpate hooves to determine if the digital cushion and other structures of the posterior hoof are healthy. In closing, she also notes that — as with any shoe and its application — a proper balanced trim is needed with Duplo shoes.

## **Guiding And Enhancing Foot Growth?**

Dave Giza, a farrier from Culpeper, Va., has found another urethane alternative, Easy's Slipper, particularly useful in therapeutic cases where improved hoof growth is a goal.

Unlike some other non-metal shoes, Easy's Slippers is glued to the outer hoof wall, rather than the bottom of the foot. Giza explains that the glue is not applied until the horse is standing on the shoe. The glue is then injected through holes that were previously drilled in the sides of the "cuff" area, with the horse in a weight-bearing stance on the shoe.

Giza says one of the things he likes about the Easy's Slipper is that it stabilizes the outer hoof wall and actually restricts flexibility.

"It seems to have the effect of restricting the diameter of growth," he explains. "It encapsulates the hoof wall and forces it to go down rather than spread."

Giza, who has been a farrier for about 10 years, estimates he has about 30% of the horses he shoes in Easy's Slippers and that all but 5% of that portion are therapeutic cases. He finds the shoes easy to modify and has used them on trail riding horses, driving horses and for big horses needing up to a size 8. He has found the heart bar model particularly useful.

## **Traction And Concussion Reduction**

Shannon Cole, a farrier from McKinney, Texas, first used Ground Control urethane horseshoes at the request of a client whom she describes as a "very competitive trail rider." The client's horse had very little sole depth and was footsore. The owner read about the shoes on the Internet and asked Cole to try them.

Cole was intrigued when the horse quickly became sound and decided to try them on her own horses.

Cole, who became a farrier largely to shoe the horses that she uses in her own Happy Trails Carriage Service, has been more than satisfied.

"McKinney has a lot of pretty steep hills," she says. "I'd always used steel shoes with DrillTek, but I've found these give even better traction, even on brick, which we have on some of our streets."

Cole's carriage horses — Missouri Foxtrotters rather than draft horses — often are driven 12 to 15 miles a day. She usually gets a reset out of the shoes and believes the shoes are particularly good for older horses, or horses with arthritis.

Cole says that between her own horses and those of clients, she has more than 50 horses in Ground Control shoes now. She's now using the shoes exclusively in her practice, in part due to a wrist injury that made shaping and working with steel shoes painful. When she believes a horse isn't right for urethane — barrel-racing horses, for instance — she'll refer the client to other farriers. In return, some of those farriers will refer their clients to her when they think a horse might benefit from urethane shoes.

## Protection For And From Hard Surfaces

Some non-metal shoes were developed primarily for horses that work on hard surfaces, such as paved roadways. These include the Remuda Tire System and the Olov Original. Some communities require that carriage horses as well as others that regularly use the paved streets be shod with non-metal shoes to prevent damage to the streets. But the same shoes that protect pavement can reduce concussion to a horse's legs, as well as provide additional traction and support.

"What we clearly see is that the majority of Olov Original users use them to improve traction and shock absorbing when working on hard surfaces," says Robert von Schrowe, sales manager for Cemtec AB, the Swedish company that is the global distributor of the shoes, which are manufactured by another Swedish company, Halmstads Gummifabrik or HGF AB (in the United States, the shoes are distributed by Delta Mustad Hoofcare Center).

The shoe is a rubber exterior with a steel core. Studies done in conjunction with the development in the shoe indicate that the shoe does improve shock absorbing, while the core enables the shoe to be shaped.

Von Schrowe says that despite some initial skepticism on the part of farriers, the market for the shoes has grown steadily since their introduction in the early 1990s. The improved shock-absorption qualities have also led to the shoe's use for therapeutic cases.

## Getting Ahead Of The Non-Metal Shoe Learning Curve

Non-metal horseshoes come with varying degrees of difficulty in the areas of use and application.

Some are designed to be nailed on, some can be glued on and some can be attached either way. A few company's shoes are designed with various levels of urethane hardness (often color coded). Some can be easily shaped or otherwise modified, while others are more rigid.

So if you decide to add non-metal horseshoes to your hoof-care offerings, plan on spending some time going back to school. It makes sense to spend time with another farrier who is already using the shoes, or to attend clinics on using and applying the shoes that most of the makers put on. There are also how-to videos on many company websites

Gary Werner, the Smithtown, N.Y., farrier, who has a wide range of experience with these products, likes to recommend that farriers spend time practicing with non-metal shoes to learn how to manipulate and apply them, but he knows this can be an expensive proposition.

"If you are practicing with steel shoes, you can draw a clip, widen the web, maybe put a trailer or some other modification on and you're out a few dollars," he says. "But if a pair of shoes is costing you \$40 to \$50 plus shipping, that's a big investment to putz around with."

Werner says the higher cost of non-metal shoes also is a factor when it comes to inventory.

"Some of these are available in different models. But if you were going to carry four different models on your truck in several different sizes, that can be a big investment."

Still, practice is important. Werner has found that it's tricky to set and clinch nails with some of the shoes and that the ease of gluing on the shoes varies. He says none of the difficulties are insurmountable, but take time to learn.

"I find it's worth the time," he says. "You want to look like a professional when you're working in front of your clients."

Monique Craig of Epona Tech Inc., the developer of the Epona composite shoe, notes there also can be a learning curve regarding how a horse's foot reacts to a non-metal shoe. She says hoof capsules can go through some significant morphological changes during a transition from metal to non-metal shoes that can involve changes in hoof shape and growth rates. She says this can cause some loss of shoes in the early stages, as well as a need for a shorter shoeing cycle.

She says this problem usually disappears after a settling-in period.

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Pat Tearney is a long-term newspaper and magazine veteran writer and editor. Before retiring, he served for a number of years on the *American Farriers Journal* staff and continues to share his writing talents with our readers.