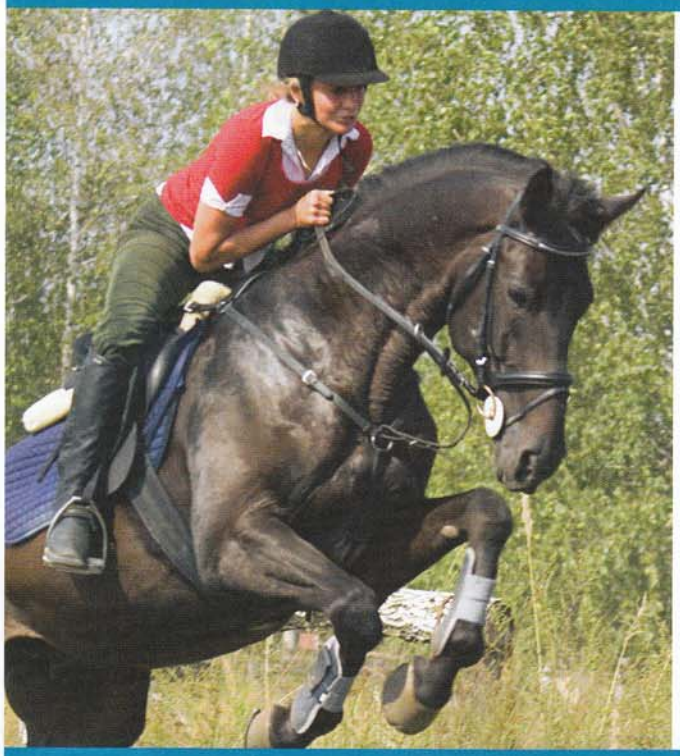

WORN THIN

– PART 1 –

Take a look at the wear patterns on your horse's hooves. They're telling you something important.

WITH JAIME JACKSON

Have you ever observed that certain areas of your horse's feet are becoming more worn down than others, and wondered what it meant? Veteran hoof care professional Jaime Jackson joins us for the first of a two-part Q&A series, in which we'll cover what constitutes normal "wear and tear" when it comes to your horse's feet.

EW *What is considered normal hoof wear between trims? Can a horse wear the hoof wall down to a detrimental point if he's ridden a lot on rough terrain?*

JJ How much hoof is physically worn away between sessions depends on how much the horse is ridden, the riding discipline, the rider's weight, the equestrian environment, boarding conditions, if boots are used, how the hoof is trimmed, diet and other factors. In the wild, horses move as much as 25 or more miles in a single day, depending on availability of forage and water, socialization patterns (e.g. foaling season) and predation. This is what horses' feet adapted to 1.4 million years ago. They are capable of withstanding the most rugged environments. Natural hoof care practitioners generally agree that horn replacement due to new growth is approximately 1 cm per month. This is a good estimate of how much equestrians can expect from their own horses.

There is an effective though somewhat technical way to gauge if a horse's feet are being over or under worn, or are in a dynamic state of equilibrium with wearing forces. It entails evaluating the hoof (and the trimming done to it) according to what natural hoof care practitioners call the principles of the Healing Angle of Growth, also called

Fig.1 (a) H° marks the healing angle.

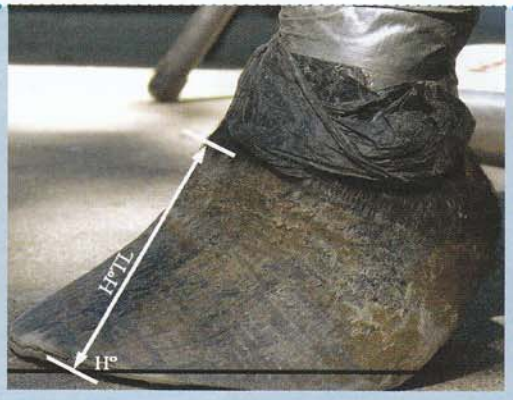

Fig. 1 (b) H° TL marks the healing toe length.

Fig.1 (c) Measured using the Hoof Meter Reader (available at star-ridge.com)

the Healing Angle, or simply H [see sidebar]. Specifically, when trimmed to H, a hoof can be said to be too worn if its relative HTL decreases between trim sessions. If HTL is static (as in the wild), hooves are said to be in a dynamic state of equilibrium with the environment, and nothing different needs to be done. If HTL increases over time, the hooves simply need to be trimmed. I use this standard myself, and it has not failed me in 28 years in the field. This method of evaluating hoof wear will not work for inappropriate trimming methods; for example, if they are invasive (i.e. penetrate the hoof's epidermal armor), leave excessive growth to begin with, or ignore the hoof's relative concavity (e.g. a farrier traditional "flat trim").

Hooves that are hypersensitive due to pain, and where HTL is in a lengthening mode, are probably suffering due to diet (e.g. laminitis), unnatural riding practices, and/or the hooves are not properly conditioned (transitioned) to the environment. This constitutes horse abuse if the problem is recognized but nothing is done about it. At any time a rider is uncertain about the relativity of HTL, s/he should use hoof boots and have the horse's feet trimmed at four-week intervals by a trained and competent natural hoof care practitioner.

EW *What can excess wear to a certain area indicate? How do you go about discovering the cause?*

JJ It depends. If HTL is in a shortening mode, it could signal impending or outright foot pain and lameness due to overzealous riding; as I'll explain below, though, this is highly unlikely. It may also be that the hooves are over-trimmed through incompetence or by design – some barefoot trimming practices condone this, but they are inhumane in my professional opinion. Also, it is possible that what appears to be excessive wear is in fact just the hoof breaking off where it should have been trimmed away in the first place. These are all distinctions that should be made by a professionally trained natural hoof care practitioner.

EW *Should a rider be concerned if his/her horse appears to be excessively wearing a specific portion of his hoof wall between trims?*

JJ Not necessarily. In my book *The Natural Horse: Lessons From The Wild,* I explain the presence of "active" and "passive" wear in the hooves of wild horses (Figure 2a, b on p.24). These relate to what I call "biodynamic hoof balance" [see page 25] – in my opinion one of the most important yet least understood facets of natural

Healing Angle of Growth

H (Healing Angle) is a measurement of the hoof's optimal angle of growth down the median plane of the dorsal (toe) wall. HTL (Healing Toe Length) is the length of the toe wall at H. The "Hoof Meter Reader" gauges this angle and corresponding length, and is one of the most crucial measurements in natural hoof care. (Figure 1a, b, c on p.22)

Fig.2 (a) Starbursts pinpoint the locations of this right front, wild horse foot's "active wear" pillars. Every space between these active wear pillars represent areas of "passive wear" during the hoof's support phase. Horn constituting these active and passive wear locations correspond to the horse's unique conformational and temperamental influences forged by the weight-bearing locomotive force, rather than inherent areas of relative strength and durability.

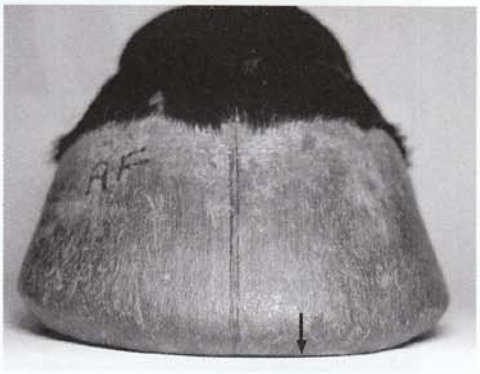

Fig.2 (b) Arrow points to "active wear" pillar.

Fig.3 "Bull-nosed" hoof.

hoof care. The general theory of biodynamic hoof balance holds that in the horse's natural state, areas of "active" and "passive" wear correspond to "strong" and "weak" locomotive forces respectively. These forces, which are principally compressional (weight-bearing) in nature rather than concussional (stationary counter-forces from the environment), are driven by the horse's unique conformational and temperamental attributes. What this means is that when hooves are trimmed to H (and HTL by extension), we can expect active and passive wear patterns to emerge. In this interpretation, excessive wear has nothing to do with horn quality (though it can through unnatural horse care practices) or unbalanced riding; rather, it's the positive and natural outcome of the hoof assuming a more natural shape due to biodynamic hoof balance. Understanding this is very important, so let's look at an example, and you can even look at your own horse's feet to compare.

From my wild horse studies, I learned that active/passive wear patterns are symmetrical with respect to left/right hind and left/right front hooves. For example, if a right hind is actively worn along its medial wall, the corresponding medial wall of the left hind will also be actively worn. Hence, if your horse is showing more active wear on his hind medial walls, your hoof care and riding is probably more biodynamically balanced than if the wear patterns are asymmetric (e.g., the left hind medial and right hind lateral walls are actively worn).

Now I'm going to explain how those active wear patterns actually occur in the naturally shaped hoof, and it might not make sense at first! "Active" wear is identified in hooves with lengthening HTL by the presence of more pronounced ("excessive") growth. That part makes sense – if there's more growth, it's going to be more actively hitting the ground, right? Now hopefully you can accept this: a hoof that appears to be wearing more on the lateral (outside) wall, because the hoof has less growth there, is actually wearing more on the inside wall. Here's the reason, and what is important to understand above all: it's not that the outside wall is weaker (and thus wearing away more) – it's that the medial wall is stimulating more growth due to active wear, just as we see in the wild where HTL is in a static state of biodynamic balance.

This is not unlike forming "calluses" on your feet if you go barefoot. They are a thickening of your sole due to increased wear. Areas of passive wear in your foot aren't inherently weaker, they just aren't worn enough to generate excess protective growth. We can now define the two principles of natural wear (active/passive) as follows:

- Extra growth = more wear in that location
- Less growth = less wear in that location

The reason this isn't better understood or more obvious to the naked eye is because of the contradictory growth illusions caused by shoeing. Horseshoes preclude any kind of horn loss as a result of wear, active or passive. So the hoof just keeps growing longer and longer. We just assume, erroneously, that it's all they're capable of doing. Indeed, biodynamic hoof balance leads us to a far more complex picture. It isn't always a pleasant one either – there are, in addition, possible negative explanations for what

appears to be "excessive wear", and all represent unnatural trimming, shoeing and equestrian practices.

For example, it is not uncommon to see hind hooves "dubbed at the toe"; that is, the toe wall no longer grows down straight to the ground, as it naturally should, but in a more curved or convex orientation (sometimes called a "bull nose"). While this can and does result from intentional trimming and shoeing practices in an effort to accentuate gait or prevent overreaching, it can also happen biodynamically (caused by wear, not trimming) for other reasons.

Horses that are listlessly or aimlessly moving along without collection can cause their hind hooves to "drag" along behind, grinding the outer wall of the toe back. These horses lack the natural behavioral stimulation – as we see in the wild – to step underneath themselves to provide balanced support. Their "worn away" dorsal (outer toe) walls begin to resemble those intentionally "dubbed" by farriers trying to correct interference or stumbling (Figure 3). Such practices can induce what I call a pathological migration of the capsule into a club foot conformation (discussed in the next issue). Hunger can cause listless movement resulting in unnatural "dragging" patterns, usually in the hind hooves, as can riding in the absence of natural collection. But whether such unnatural wear occurs in the outer wall or some other part of the hoof's weight-bearing surface, they are clear indicators that biodynamic hoof balance is somehow being compromised. If it's ignored, a potentially insidious reinforcing "cycle of dysfunction" can be expected, causing permanent hoof deformity, joint destruction, obstruction of natural gaits (i.e. interference) and clinical lameness.

Join us for part two of this article in the next issue of Equine Wellness. *Jaime will address specific wear patterns, how to interpret them and how to remedy them, if necessary.*

Biodynamic Hoof Balance

AANHCP practitioners learn how to simulate natural wear patterns with their tools and equipment. These patterns precipitate natural growth patterns (size, angle and proportion, as studied and quantified in the wild), which in turn facilitate more naturally shaped hooves. Hooves so shaped support more natural movement. A repeating and reinforcing "cycle" of "form-and-function" ensues, contributing to an equilibrium called biodynamic hoof balance. This is a confluence of locomotive forces, the animal's unique conformation and temperament, and the environment. In part, it's a mechanistic process, achieved largely through what we call the "natural trim".

When natural boarding conditions, natural training methods and natural diet are integrated and factored in, biodynamic hoof balance is further enhanced and reinforced. In this sense, "natural hoof care" is a broad holistic endeavor, not simply a trimming process.

Jaime Jackson is a 35-year veteran hoof care professional, lecturer, author, researcher and noted expert on wild and domestic horse hooves. In the early 2000s, Jaime created the American Association of Natural Hoof Care Practitioners, now called the Association for the Advancement of Natural Horse Care Practices *(aanhcp.net)*. He has written two books: *The Natural Horse: Lessons from the Wild*, and most recently, *Paddock Paradise: A Guide to Natural Boarding*. Jaime resides in central California and continues to maintain a trimming and rehabilitation client base.