

The Equine Balance Equation: Part 2: Balanced Feet

The equine athlete requires a healthy, balanced, foundation to perform his job with soundness and comfort. This element of the equine balance equation refers to the balanced, barefoot horse. This is not intended to insinuate that all horses can go barefoot. However, I do believe that many horses can perform their jobs without shoes and travel sound on healthy hooves.

The subject of barefoot trims is right up there with discussing politics or religion. I'm not out to start a battle among supporters of different trim theories and which one is best. What I do intend to do is describe the results of an effective trim and how a healthy, balanced hoof should appear.

There are two key elements which are required to succeed with barefoot horses: patience and recognition of progress, positive or negative.

- a) Patience is necessary, because an effective barefoot trim stimulates proper hoof growth. However, hoof growth is a slow process. The amount of time required to have a sound, barefoot horse, strongly depends on the 'as found' condition of the horse's hooves. On the average, excluding founder and extreme cases of neglect, most horses will find barefoot comfort while performing their jobs within six to twelve months. During this transition period, a horse may experience tender-footedness right after being trimmed and while walking on gravel or hard surfaces.
- b) Progress can be positive or negative. Not only does the horse owner have to notice changes in the structure of the hoof, the owner has to determine if the change is good or bad.

An excellent indicator of progress is the thickness of the inner wall at the quarters of the hoof, (explained in this article). Notice the appearance and thickness of this layer each time the hoof is trimmed. A proper, natural trim will stimulate growth of this layer. It will appear wider and healthier, which in turn will strengthen the outer wall at the quarters. Within one to two months, a noticeable change in the thickness of the inner wall should be apparent.

If positive changes are noticed, stick with the current program. If not, do some more research and keep your horse's well-being your first priority. Stay focused. You have an achievable goal, a sound, barefoot horse. Go with what works for you and your horse.

The following terms will be used in this article. This is my attempt to avoid any misunderstandings during descriptions of the hoof.

Hoof terms and how I use them.

- 1) Coronary Band: (fig. 1) The junction between the skin and the hoof wall.
- 2) Hoof Wall: (fig. 1) Protective structure surrounding the sensitive tissues of the foot.

- 3) Outer Hoof Wall: (fig. 3) Hard, dry barrier for strength and protection.
- 4) Inner Hoof Wall: (fig. 3) Moisture retaining layer provides connection between outer wall and lamina.
- 5) Quarters: (fig. 1 and 2) Hoof region between the heel and toe.
- 6) Bulbs of the Heel: (fig. 3) Blends with the frog and connects to the coronary band.
- 7) Frog: (fig. 3) Triangular shaped component which assists with blood circulation through the foot.
- 8) Central Groove: (fig. 3) Located on the surface of the frog. This groove should be shallow.
- 9) Collateral Groove: (fig. 3) Area between the bar and the frog.
- 10) Bar: (fig. 3) Support structure which extends from the heels and angles towards the frog in the quarter region.
- 11) Heel Purchase: (fig. 3) Located where the bar and the wall meet at the heel. This is a very important support structure of the hoof. Sufficient heel purchase is a necessity for a sound barefoot horse.
- 12) Sole: (fig.3) Concaved surface area between the lamina and the bars/frog.
- 13) Lamina: (fig. 3) Fibrous material connecting the hoof wall to the sole.
- 14) Break-over: This term refers to the point at which the horse's hoof shows wear due to the horse rolling off his toe as he moves.
- 15) Thrush: A fungal disease of the hoof. Thrush attacks the frog at the central groove. It deteriorates the frog, creates a deep central groove and can penetrate right through to the foot. The central groove will have a black, tarry appearance and a strong foul odor. By damaging the frog, thrush threatens lateral hoof support and can lead to lameness.

To recognize healthy, balanced hooves, your examination should begin with the horse standing squarely with weight comfortably on all four feet. (Note: Your observations will deal with all four feet, however, for simplicity I am going to refer to only one hoof.)

- 1) The hoof wall should follow the natural angle of the coffin bone attachment point, which is approximately one inch below the bottom of the coronary band. (Figure 1) This angle can be checked with any convenient straight-edge. (Photo, A)
- 2) The quarters should not be 'flared-out', nor should the toe be long and protruding past the natural angle of the hoof. Compare photo B to photo C, paying special attention to the angles of the hooves from the coronary band to the ground.
- 3) The hoof wall should be smooth, hard and free of cracks.
- 4) The coronary band should be a level plane, without bumps or bulges.
- 5) The bottom edge of the hoof should be nicely rounded to prevent chipping.
- 6) The hoof should be trimmed so that the heel and toe regions are weight-bearing and the quarters are slightly shorter to reduce ground

contact. I call this 'relieving-the-quarters'. This prevents excessive pressure on the quarters. Excessive quarter pressure is responsible for distorting the coronary band and cracking the quarter region of the hoof.

When you are satisfied that the 'standing square' exam is complete, carefully lift up a hoof and start the 'bottom view' inspection.

- 1) After the hoof is cleaned, notice the health of the frog. It should be full and thick, with a shallow central groove. The height of the frog should be slightly shorter than the heels. If the frog is small, thin or has a deep center groove, notice the odor of the frog, you may be looking at thrush.
- 2) The bars of the hoof provide support, but are not meant to be weight-bearing. (Meaning the bars should not be long enough to touch the ground.) The height of the bars should follow the concavity of the sole. (Compare photo, D to photo, E.)
- 3) The sole should be firm and concave. A flat, thick sole hinders the natural distortion of the hoof while the horse is in motion. (Just like your feet, horses' hooves distort and contract as the hoof alternates between 'weight-bearing' and 'non-weight bearing' when the horse is in motion.)
- 4) The health of the inner wall is vital, because the inner wall must be healthy in order to have a healthy outer wall. By filing a small layer of hoof wall off, while holding the hoof as in figure 2, you will notice a lighter pigment of hoof material between the lamina and the outer wall, (figure 3). This is the inner wall. It should have a constant thickness the entire way around the hoof, heel to heel. In most cases, the inner wall will be thick at the toe and non-existent at the quarters. This is why the quarters break; it's a lack of healthy structure.
- 5) Check the health of the lamina. It should be level with the sole and wall on either side of it. It should appear fibrous and light yellow in color. The lamina is in poor health if it is black in color and/or it is not there at all. Sometimes a gap will appear where the lamina is supposed to be.
- 6) Notice the amount of heel purchase the horse is standing on. A solid heel purchase is in the shape of a triangle, clearly showing the junction of the bar and the hoof wall. (Compare photo, D to photo, E.)
- 7) Examine the toe region and determine where the 'break-over point' is. If the horse is traveling straight, the toe will be worn at the center-line of the hoof. Otherwise, the toe will be worn to one side or the other, indicating the horse is not traveling straight.

The final check that should always be done when concerning yourself with a horse's feet is to watch him walk, trot and canter. His gates should be effortless and flowing, tracking up evenly and holding his head steady.

Barefoot horses can do many jobs soundly and comfortably. If your horse is used to wearing shoes and you want to try going barefoot, remember, there is a transition period he must go through. His feet need to grow out and toughen up naturally, which takes time. No different then if I took your shoes away from you. How long would it take for your feet to toughen up so you could run down the road? There are 'transition boots' available to help horses through the toughening up period. Don't get the wrong impression. I'm not talking about six to twelve months of lameness!! I'm talking about tenderness on gravel and possible soreness one or two days after trimming. The horse is usable you just have to be extra careful.

The whole point of this article is to provide information for those who may be interested in helping their horse have healthy, balanced hooves, which is the basic foundation towards having a sound, balanced horse.

In this article, I did not cover every aspect of hoof anatomy and function. However, I hope that I was able to shed some light on the feasibility of owning and using a sound, healthy and balanced barefoot horse.