



# Barefoot or Shod? *It depends...*

by Stephen E. O'Grady, DVM, MRCVS

**Should your horse be shod or barefoot? Equine podiatry expert Dr. Stephen O'Grady presents the information you need to help make this decision.**

**T**his topic was discussed recently at the 2006 American Association of Equine Practitioners (AAEP) Annual Convention and generated some very informative dialog while raising many important questions. I must say from the onset that I favor horses being maintained without shoes when possible but it depends on multiple factors. On the other hand, I also feel that horses can be shod in a physiologic manner such that minimal damage to the hoof capsule will occur. The factors used to make the decision on barefoot versus shod include the use of shoes for protection when wear of the hoof exceeds growth, for traction which is often needed in the performance horse for athletic activities, and for therapeutic reasons in order to treat lameness, diseases of the hoof or to address limb conformation. One or a combination of the above reasons may dictate the necessity for shoes. Whether or not it is feasible for a horse to go without shoes will further depend on the owners' expectations, the owners' commitment to the project and the hoof care the horse receives, especially during the transition period. Much of the horse industry is involved in competitive athletic disciplines and the question arises, "Can this horse compete and perform at a given standard without shoes?"

**Wear versus growth** is the first point to consider. The genetics and breed of the horse, the structure and conformation of the hoof, the surface on which a horse is worked and most important, for what purpose the horse is going to be used; these variables all influence the wear of the feet and will affect the decision as to whether the horse can be maintained barefoot.

The structure of the foot is usually the determining factor as to whether the horse can remain barefoot. Maintaining the horse barefoot is best accomplished when or potentially when the hoof wall is thick and solid, there is good sole depth and there are soft tissue structures in the palmar/plantar section of the foot that are of sufficient mass. Breeding practices have had an influence on the structure of the feet, unfortunately not always for the better. Quarter horses have been bred for fashion while Thoroughbreds have been bred for speed; this often results in poor quality feet. More often than not (especially with Thoroughbred horses) the foot is not allowed to grow and mature into a so called "good" foot<sup>1</sup>.

Hoof development, particularly for the first three years, is dependent on stimulation from regular exercise and turn out. Yearlings are often shod for the sales. The majority of horse's feet remain healthy until the time they are broke and enter training, usually as 2 year olds. As training begins, the hoof capsule and its related structures are still immature, the animal is confined to a

stall or small paddock, a rider is placed on its back which leads to additional weight bearing on the feet and the horse now begins to work. Training may lead to abnormal stresses being placed on an underdeveloped foot along with excessive wear to the feet. The animal begins to show discomfort and shoes are then placed on the feet for protection. It has been discovered that the horse has receptors in the bottom of its foot and it is speculated that these receptors function in a stimulatory capacity<sup>1</sup>. So the first thing that happens when shoes are applied is that these receptors lose contact with the ground.

Next, we need to take into account how the foot is being trimmed and the application of shoes by the farrier. So we see right off that the combination of the above factors can/will/often do change the structures of the foot forever, often leading to a "weak" foot that is hard to maintain without shoes. Prove this to yourself by taking a digital photo of a horse's foot at the start of training and then take another photo six months to a year later and compare the difference. Traditionally, we place shoes on these youngsters too early and often it is not necessary as long as a few modifications are made in our training program so the feet can continue to develop.

Coupled with the structure of the foot is the exercise program that is anticipated for the horse being maintained without shoes. Many horses can do well without shoes as long as they are not asked to perform. Light riding may be feasible while competition may not be possible. Finally, the surface upon which the horse is kept/exercised will influence the wear on the feet. A hard or abrasive surface such as sand will not be as forgiving as a soft, deformable footing.



The need for **Traction** on variable ground conditions can also dictate the choice of barefoot versus shod. Shoes in and of themselves act as a traction device as well as providing more cup to the foot. Traction devices allow horses to hold their footing, prevent slippage, and improve overall performance in competitions such as eventing, jumping, steeplechase racing and polo. Equestrian sports such as fox hunting that take place during win-

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ter are aided by traction devices because of the diverse weather and footing conditions. They provide safety to the horse and give the horse confidence while performing. A factor often overlooked in the equation is that traction devices also provide safety to the rider as well, whether the person is trail riding or competing. Sliding plates in reining horses could be considered an anti-traction device, as they decrease the friction between the ground and the hoof. Borium or studs allow a horse to pull a sleigh on the snow and ice.

**Therapeutic** shoeing generally forms part of or sometimes the entire treatment for lameness confirmed to the foot. Lameness results from repetitive stresses or overload placed on a given structure/structures within the hoof, leading to damage. Shoes can be used to change the forces/stresses on a given structure within the hoof capsule and unload damaged areas of the foot. Shoes are used for realignment of the distal phalanx in the case of laminitis; they provide continuity of the hoof capsule after resection in white line disease, stabilize hoof cracks and distal phalanx fractures and provide protection following a puncture wound or foot surgery. Angular or flexural deformities in young horses may be treated or aided by various types of shoes.

A **transition** period is always needed when changing a horse from being shod to barefoot in order to allow the foot to adapt<sup>2</sup>. Adaptation means the hoof wall must toughen and the sole must increase in depth, i.e. become thicker to compensate for not wearing shoes. Horses are much easier to maintain in a barefoot manner if they have never had shoes. It also makes a big difference as to how long the horse has worn shoes because this has a bearing on how long a lag phase can be expected before the horse develops the necessary sole protection once the shoes are off. The structures of the foot are often of inadequate mass or irreversibly damaged and thus incapable of adaptation. If a decision is made to remove the shoes, the horse should be taken out of work. We recommend a 30-90 day transition period during which time the structures of the horse's feet are allowed to toughen and adapt to being without shoes.

At this point we also change the method of hoof care from trimming the foot to "shaping" the foot. The only tools necessary are a wire brush and a rasp. Nothing is removed from the bottom of the foot. Using a rasp, the heels are moved back to the base of the frog (when possible) and the hoof wall is not lowered but just rasped on an angle so a rounded edge is created. Flares or excess toe are removed from the outer hoof wall (shaping). We finish by slightly beveling the toe from the toe quarters forward to promote sole growth and to toughen the sole wall junction. If firm pressure (using thumb pressure or hoof testers) on the sole causes the sole to give, this bevel should not be created.

This adaptation phase can be gauged according to the initial structure of the horse's foot and should be controlled. When a



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minimal sole depth is present (as evidenced by hoof testers applied to the sole), the horse should be confined or placed in a small area of soft footing and then walked daily on a firm surface until the structures of the foot begin to change and adapt. Placing the horse in some form of protective boot may not provide the foot the necessary stimulation to adapt. At no time should the horse show marked discomfort, as this defeats the purpose. If, after 30 days, the horse's sole has not become firmer and noticeable growth of sole does not appear on the inner border of the sole wall junction, then it may be worthwhile to reconsider this method of hoof care in the best interest of the horse.

In **summary**, many barefoot proponents have taken an extremist view that shoes and nails start the feet on a destructive road, purporting this belief without looking at the overall scientific and physiologic picture. There are advocates of the barefoot movement that claim through their research that applying shoes to the horse is detrimental and therefore all horses

need to be barefoot. This research claims that nails placed in a horse's foot are toxic, that the bars in the heels should be removed as they impinge on the circulation and that all horses should be trimmed in the same specified manner. Yet I have never been able to find this research. I have never seen a scientific publication that states nails are toxic when placed in a horse's foot. If we think of the hoof capsule as a cone one quickly sees the necessity of preserving the bars, as they provide stability and allow the hoof capsule to expand. This, in turn, allows the normal physiology of the foot to take place.

Finally, if we consider the various breeds of horses, individual foot conformation, structures of the foot, phalangeal alignment, etc, it would appear highly unreasonable to trim all horses in the same manner. As all horses are not created equal, neither are their feet. Shoes have been known to cause lameness and change the hoof capsule; shoes have also been documented to treat lameness and improve the structures of the hoof. So when we decide whether a horse can be kept barefoot (and many can't), considering the variables involved, the answer may be "**it depends.**" **NWHS**

### REFERENCES

<sup>1</sup>Bowker, R.M. Contrasting Structural Morphologies of "Good" and "Bad" Footed Horses. In Proceedings Am Assoc Equine Pract 2003;49: 186-195.

<sup>2</sup>Bowker, R.M. The Growth and Adaptive Capabilities of the Hoof Wall and Sole: Functional Changes in Response to Stress. In Proceedings Am Assoc Equine Pract 2003;49: 165-166.

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### ABOUT THE AUTHOR

Dr. O'Grady was a professional farrier for ten years prior to obtaining his degree in Veterinary medicine. He combines his skills as a veterinarian and as a farrier to better understand and treat hoof problems, and has published numerous articles in both veterinary and farrier literature. In 2003, he was inducted into the International Equine Veterinarians Hall of Fame.