

Understanding the Basic Principles of Podiatry



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KEYWORDS

• Podiatry • Therapeutic shoeing • Foot-related lameness • Mechanics

KEY POINTS

- Principles of therapeutic shoeing are based on the mechanical thought process of altering the internal forces as a means to aid preventing and/or treating the ill effects of foot-related lameness that frequently occur with the performance horse.
- Equine podiatry can be defined as a professional field of service that requires the efforts and dedicated responsibility of foot-focused veterinarians and pathologic focused farriers.
- The primary goal for therapeutic applications is to offset the mechanical limitations and enhance the healing environment.

Foot-related lameness is one of the most frequently encountered problems in the equine industry. Therapeutic shoeing is a frequently used preventative discipline for the treatment of many causes of lameness.^{1–3} The primary goal for therapeutic applications is to offset the mechanical limitations and enhance the healing environment. The mechanical influence of trimming and shoeing for therapeutic purposes is poorly understood by some farriers and veterinarians. Generally, traditional trimming and shoeing goals are focused on creating a normal-appearing, well-balanced foot. This concept serves the horse well as long as it meets the ever-changing maintenance requirements of the foot. However, the terms normal, balanced, and therapeutic are subjective at best and are relative terms. Compared with what? Foot problems frequently occur despite of the very best efforts of competent, experienced, and highly respected farriers, but are seldom resolved with more of the same well-shod, balanced appearance concept that if it looks good it must be so. Without consideration of the forces within the foot that influence the vital vascular supply routes to horn growth centers, the healing mode is handicapped, and problematic issues persist shoeing after shoeing.

Regardless of the many variables, such as breed, limb conformation, and environment, that will change the overall shape of the foot, the ill effects from the demand of

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their athletic careers could end up with compromised performance. More importantly, it must be remembered that the foot is constantly changing due to growth, the rigors of training, and farrier influence. External alterations of the hoof capsule can be evident to the astute eye. However, many crucial changes go unnoticed until lameness or other problems are evident. The key to understanding the mechanical thought process lies in the awareness that the forces within the foot have a direct influence on the shape, strength, and durability of the hoof capsule, and likewise, these forces are altered as the capsule changes.

The equine veterinarian is responsible for the overall soundness of the horse. However, they share this responsibility equally with the farrier, who is responsible for maintaining the overall health of the hoof capsule, using farrier knowledge and skills. Collaborative efforts of each highly respected profession are required for best results when foot issues become evident. Both professions become proficient through years of experience and skill development using their respective education, knowledge, and dedication.

Equine podiatry is a blend of the 2 highly respected professions each contributing to the task at hand, but neither formally educated and trained as collaborative team members with a common thread of podiatry principles. Therefore, learning the art of podiatry from the perspective of each profession requires each individual to develop working knowledge of the combination of farrier science and veterinary medicine as it relates to the foot. A thorough knowledge of traditional horseshoeing enables the veterinarian to better interact with the farrier, ultimately enhancing communication and promoting better-quality hoof care. The farrier who develops an eye for radiographic information and learns to recognize the value of using it to assist strategic mechanical decisions greatly enhances the collaborative efforts as well as its success.

Trimming and shoeing has a direct effect on a variety of parameters associated with the hoof and the limb above it. Normal foot function, breakover, the manner in which the foot lands, the duration of the stance phase of the stride, and ill effects of injuries related to landing and weight-bearing are all affected by trimming and shoeing. Thus, the mechanical model is altered to some degree with each swipe of the rasp. A thorough knowledge of farrier science and mechanics within the foot provides a better understanding of how to change and improve abnormal foot conformation, and how to improve distal limb function. This article focuses on the principles of therapeutic shoeing based on the mechanical thought process of altering the internal forces as a means to aid preventing and/or treating the ill effects of capsule distortion that frequently occurs with the performance horse. Recognizing subtle changes in hoof conformation and understanding what has changed internally enable one to preserve the integrity of the hoof capsule, along with the structures enclosed within, and thus prevent many of the associated lameness in the performance horse.⁴

Understanding the forces at play that underlie the mechanical failure allows a more precise strategic management to be formulated. A key element relative to this discussion is the interconnectedness of all components of the digit. The interconnectedness of the digital structures allows the foot to function as an integrated unit, supporting the body and dissipating the forces of ground impact and loading to prevent overload and damage of any one particular component. Owing to the interconnectedness of the digital structures, when one component is weakened by genetic factors, overload, injury, disease, environmental factors, or human interference, the entire hoof capsule is weakened. A cascade of damage, altered growth, and hoof capsule distortion is inevitable, because all components are affected when one fails. As a result, the function of the entire digit is compromised.⁵

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