

Hoof Health with

Thinus Rademan

In our second of a series of interviews with Farrier, Thinus Rademan, we got to talking to him about conformation and how to help the impaired horse with remedial farriery.

Why are hoof & limb manipulations critical in managing conformation?

Firstly it is imperative to understand that trimming & shoeing determine the horse's hoof shape and balance while the actual hoof conformation crucially affects the horse's limb biomechanics and may either prevent or predispose the limb to injury.

The assessment of the horse's motion, the flight motion of the limb & hoof and the relationship between hoof balance and the musculoskeletal system's biometric capacity reveal all the mechanical influences possibly needed to enhance a horse's conformation defaults.

What is your opinion on artificial extension's or manual hoof manipulation?

It takes a lot more effort & energy for a horse to move with artificial/external extension's. It is highly recommended that before manual manipulation is applied that a certified farrier and veterinarian work in unison in best interest of your horse.

I never find it acceptable to externally manipulate the horse's conformation if added stress presents on tendons, ligaments and muscles.

Yes we all want our horses to do their job BUT we always need to ensure that the motor mechanical movements are never compromised. If you have a horse with a problem, use tactics that relieve or reduce stress off the horse's mechanical system. Always facilitate the mechanical function and add support where needed for the sports equine to perform optimally.

BE SURE TO COMPLETELY UNDERSTAND WHICH MECHANICAL MANIPULATIONS WOULD HELP THE HORSE AND WHAT THEY MIGHT CAUSE IF THE HORSE DOES NOT NEED WHAT YOU THINK THEY MIGHT. IT IS OF VITAL IMPORTANCE TO NEVER WORK AGAINST A HORSE'S CONFORMATION BUT RATHER AROUND IT.

Most times, less is more!

When you look at a horse's hoof, what is something that you find of significance?

There are a few things that jump out by just looking at the hoof.

I assess the relationship between the dorsal hoof wall angle and the coronary band circumference.

This provides me with a visual indication and clues of the transfer of balanced or imbalanced energy by the horse's limb. This ratio often indicates the function of concussive forces or reveals imbalances that may directly be associated with lameness.

I look for variations in growth and wear patterns as they determine the conformation of the hoof and influence the mechanical loads experienced through the entire limb during locomotion.

Interestingly, it is taught that the small coronet band circumference with a large hoof wall angle or with a large coronet band and small hoof wall angle increases the probability of a horse presenting with lameness in the particular limb. A small coronet band circumference presenting with a large hoof wall angle tends to increase the probability towards a more upright foot. An upright foot generally suffers from increased concussive force. Larger coronet bands with smaller hoof wall angles are normally associated with broken back hoof-pastern axis resulting in increased loading on the suspensory apparatus.



Why is hoof balance important?

Loading of the growth plate is influenced by hoof placement and the traveling motion of the limb. This makes it essential for us to understand balancing techniques and when it becomes necessary, if at all, to apply extended external devices or engage in surgical procedures/manipulation to either retard or enhance bone growth.

Give us some examples of external applications or measures you would apply to support or manipulate faulty conformation:

It is imperative to start supporting most conformation faults during the first 3 months of the foals life. Manipulation is best before bones & ligaments are set. The older the horse becomes the bigger the probability becomes to work around supporting the horse successfully rather than manipulation.

1. Back at the knee: Horses that are back at the knee experience additional stress concussion, the condition tends to distribute unequal pressure over the leg. Support the horse by ensuring it has enough heel support, raise hoof angle slightly to assist in stress reduction and relief on concussion
2. Toed in (pigeon toed/bow kneed): Horses presenting with pigeon toes need emphasis on the medial/lateral balance. They additionally need enough medial heel support. One can trim hoof balance diagonally medial toe to lateral heel. A rocker toe shoe may help in certain cases
3. Toed out (splay footed): Horses presenting toed out tend to grow faster on the lateral side usually creating a bump up medial quarter. Ensure balanced trim, dress back lateral flare and keep medial-lateral balance equal in proportion. A straight bar shoe may be beneficial by preventing vertical movement of the heels



4. Upright hoof: Work towards aligning the shoulder vs hoof axis symmetry. Before trimming and shoeing, X-rays are often recommended to accurately assess the bone structure and determine the optimal trimming and shoeing approach. The most crucial aspect is to trim the heels significantly to reduce the leverage on the toe and promote a more natural break-over. A rolled toe could help in creating a "rocker" effect to help the foot roll smoothly onto the ground. Consider adding a wedge pad to the shoe to further encourage proper break-over and alleviate pressure on the heels. Depending on the severity of the uprightness, incorporating frog support can help maintain the foot's natural mechanics.
5. Brushing of the hind limb: brushing is normally present in horses displaying a base narrow stance. Ensure medial-lateral balance. Add a lateral heel extension which may provide a wider stance and create distance between the movement of the hind limbs. Also note that younger horses may brush due to lack of muscle development in which case, do the best you can to protect it by using the likes of brushing boots
6. Knee knocking (knocked kneed/ base narrow): Generally apparent in narrow chested /toed out horses. Ensure medial-lateral balance. Determine the point of interference (above or below knee), it is suggested to lower the hoof angle to move past and above its knee. A weight can be added on medial branch of shoe to encourage open type movement. Consider a shoe that is slightly wider than the hoof on the outside to provide more lateral support and prevent the leg from swinging inwards. A square toe design can help reduce the pivoting motion at break-over, which can contribute to knee knocking.
7. Cow hocked: Medial lateral balance is crucial. Adding a lateral trailer or wider heel will help achieve a square landing & break over. Typically a slightly raised heel angle reduces stress on the hock joint by encouraging the horse to break-over the centre of the foot. Any hoof placed on the ground wider than a straight-line stance must swing inward when released from the ground creating an arc instead of straight line. The inward swing of this arc is opportunity for interference from the front hoof in the moment of each stride when that front hoof is closest to the hind leg.

When is a toe extension used?

When a horse works underneath itself and tends to touch its elbow, place an extension on medial to lateral toe quarter. This slows down the break-over and encourages a better roll to open the stride. This type of stride manipulation is only recommended for short periods of time as this technique is an artificial extension aiding in movement not correcting conformation

Simply describe some shoe modifications that assist in problematic cases.

1. **Rocker Toe Shoe:** An aggressive modification breaking the plane of the foot at the toe of the shoe and foot. It allows for the manipulation of the point of break-over to be moved further back while still maintaining weight bearing on the toe.
2. **Rolled Toe Shoe:** A simple modification where the foot surface of the shoe remains flat while the ground surface of the shoe is bevelled to reduce leverage of the toe. The roll is forged into shoe from dorsal border of shoe to inside web at the toe in a tapered form. The roll toe aids in easing in breakover at the end of the supporting stage of the stride
3. **Square Toed Shoe:** By applying a square toe, the break-over point is moved to the back of the foot without affecting the angle of the coffin bone. A square toe shoe provides for the easing of the breakover and a correct natural angle
4. **Wedge Shoe:** A wedged shoe is forged in a wedge shape to provide support and stability for a horse's foot. They help improve the proportion of the hoof capsule, alter hoof angle as well as replace missing heel height. Wedge shoes can be used to improve a horse's stability and movement by adding base support. Wedge shoes can help with certain orthopaedic conditions or high performance demands. Creating close too ideal digital alignment DOES NOT overload the suspensory or superficial digital flexor tendons.
5. **Salad Bowl Shoe:** This shoe reduces leverage on the hoof wall, assisting in eliminating distortion.

Why would you use extended heel trailers?

Extended Heels can be beneficial for horses that need a palmar extension to support flat feet with underrun heels.

These extend maximally behind the lateral and medial heels. This provides more stability and support than an eggbar shoe.

Extended heels can lead to earlier landing, they are useful for horses that grab with their front shoes. In cases where landing earlier shortens the movement of the hind legs too much but the extended heels help the horse statically, one can combine them with the square or rockered toe shoe. In this way they still give more surface and stability, but the toe modifications counter the extended heels' possible negative side effects.

What is your opinion in Asymmetric hooves?

Horses with large differences in hoof size and hoof angles within pairs of feet are more susceptible to tendon injury. Asymmetry in horse's feet and limbs are proven to reduce a horse's working life. Poor conformation is a major factor and cause of injuries

When looking to buy a horse, what would be your advice?

Analyse parameters associated with risk to injury such as the coronet band circumference, hoof-pastern axis and the palmar/plantar angle of the distal phalanx.

What is your take on remedial farriery?

Remedial farriery is of vital significance as poor hoof balance can contribute to lameness and back pain. If poor balance is not corrected, the full benefit of other treatments may not be realized.



Thinus Rademan



Farrier Service