

Shoeing the Horse with Tendon or Ligament Injury.

By Ruth-Anne Richter BSc (Hon), DVM, MS

Once a diagnosis of a specific tendon or ligament injury is made, a therapeutic plan must be formulated. Discussion about treatment options should include the regenerative therapies, shockwave therapy, surgery or conservative methods. For the treatment to have a successful outcome, a team approach and dedication to the case is extremely important.

The goals of therapy for tendon or ligament injury are: (1) To reduce acute pain and inflammation; (2) Optimize repair of the injured structure; (3) Reduce any adverse biomechanical forces; and (4) Rehabilitation and return to athletic performance.

The third goal: "Reduction of adverse biomechanical forces" is the **key to a successful outcome**. This is where teamwork between the veterinarian and the farrier is crucial, and can significantly affect the outcome of the case. Open communication is critical and knowledge of the potential negative and positive effects of certain types of shoes or trimming techniques is necessary. The goal is to reduce any adverse forces that might contribute to stressing or overloading the injured structure by altering the ground reaction forces on that structure, and is accomplished through therapeutic shoeing.

Biomechanically, the superficial digital flexor tendon (SDFT) and the suspensory ligament do not respond well to being wedged up. Whereas the deep digital flexor tendon (DDFT) and distal check ligament (DSL) prefer to be wedged up when they are injured. That is with injuries to those structures related to the SDFT or suspensory ligament, the goal is to reduce stresses on those structures during the rehabilitation phase so the heels are actually lowered, thus reducing ground reaction forces at the heel and increasing

them at the toe. Conversely, elevating or protecting the heel with injury to structures that are biomechanically related to the DDFT and DSL increases the ground reaction forces and reduces stress on those structures.

Using this information, shoes can be made to alter those forces that cause stresses on some of these structures in the distal limb, thereby unloading and protecting the injury.

Severe injury to the DDFT, can be treated in the acute phase with a shoe with an elevated heel. A shoe with removable bars is useful initially, removing bars intermittently to gradually return the affected limb to the normal alignment. When there is injury to the distal aspect of the DDFT, particularly at the insertion onto the coffin bone, additional support is often necessary. A heart bar shoe is very useful for many of these horses. However, some horses that have injury at or near the insertion of the DDFT onto the solar surface of the coffin bone, do not tolerate the focal pressure placed by the heart bar shoe. In these cases, a modified plate with dental impression has been very useful. The bar of this shoe is very wide covering the caudal 1/3 of the foot, and can be placed either between the branches of the shoe if the hoof-pastern axis is normal, or on the ground surface of the shoe to add a little height to the heel as needed. Caution must be used with this type of shoe; it is best when the horse is confined. In work, the horse gets little traction, and can slip causing secondary injury. The goal is to gradually reduce the width of the bar and the amount of dental impression until the horse is finally in a straight bar shoe for a short period of time, or permanently. This type of shoe is also very useful for horses with injury to the small ligaments associated with the navicular region such as the distal sesamoidean impar ligament of the navicular bone.

Shoes useful for horses that have desmitis of the suspensory ligament (SL) include those that encourage the heel to sink into the ground a little. Beveled

or penciled branches fit short/to the perimeter with a wide toe are used for these cases. The increase in toe width 'elevates' the toe, the heel drops slightly and there is less stress applied to the SDFT and SL.

The challenge comes with horses that have asymmetric lesions, such as those with a medial or lateral collateral/suspensory ligament injury. In general, an asymmetric shoe is used with the width applied to the branch of the shoe on the injured side. The opposite branch is then beveled to permit that side of the foot to sink into the ground.

Additional challenges arise when there is more than one injury in the same limb. The more significant of the problems should be addressed first, but listen to the horse; communication between owner, farrier and veterinarian will help determine how the horse is tolerating a particular shoe.

None of these shoes will be successful in facilitating repair if the foot has not been trimmed and balanced appropriately. While this may be something that should go without mention, it often contributes to reinjury and loss of usefulness of the horse.

The ultimate goal of therapeutic shoes is to facilitate rehabilitation of the injury and to eventually return the horse to functional use, and to be back in 'regular shoes'.

Contact Brandon Equine Medical Center at 813-643-7177 or email info@brandonequine.com with any questions regarding this topic.

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