

EQUINE TENDON AND SUSPENSORY LIGAMENT SUPPORT & ENERGY ABSORPTION CAPACITY OF THE SMB™ SPORTS MEDICINE BOOT

OVERVIEW

Use of the SMB, provides significant tendon and ligament support of the distal limb of horses and can increase the energy absorption capacity of limbs by up to 45%. The appropriate use of these Sports Medicine Boots provides safe and significant protection to the suspensory apparatus and distal limb axial skeleton of performing equine athletes. This may significantly contribute to the horse's ability to have a long successful athletic career.

Support bandages have been used historically to treat *injuries to the suspensory apparatus and flexor tendons* of the limbs of Standardbreds, Thoroughbreds and Quarter Horses. These injuries are usually *associated with hyperextension* of the fetlock joints and simultaneous elongation or stretching of the suspensory apparatus soft tissue structures beyond their elastic limit during athletic activity. The degree of hyperextension of the fetlock is likely *related to the speed* the horse is traveling *and the energy generated* when the limb is fully weight bearing. Some of this energy generated during athletic activity is absorbed naturally by the bone and soft tissue structures of the distal limb. The Sports Medicine Boots have been scientifically designed to reduce hyperextension of the fetlock and absorb a significant amount of this energy and reduce the amount of energy available for potential tissue distortion that can lead to severe injury and/or career ending flexor tendon and suspensory ligament damage.

As equine surgeons, we are aware of the multiple catastrophic injuries that occur during racing and other equine athletic activities. These severe leg injuries include sesamoid fractures, suspensory ligament injuries, distal extremity fractures, and flexural tendon injuries. Not only are these injuries life threatening to the horse, they also represent significant financial loss to the equine industry in general.

Horsemen participating in all aspects of equine athletic activities will greatly benefit with the use of equine sports medicine boots as protective devices for the lower limbs of their equine athletes during racing, training and performance. The SMB boots have been designed, researched, and scientifically tested since 1989 to provide the very best lower limb support and protection during riding and all forms of athletic activity, and also function as a protective, preventative, and rehabilitative device. The boots are specifically designed to distribute pressure evenly and minimize stress to the suspensory apparatus and the axial skeleton of the equine forelimbs and hindlimbs of athletic horses.

A few comments on how the equine lower limb functions may be beneficial to the reader in understanding the benefits of using equine support boots in horses. The suspensory apparatus prevents excessive extension (hyperextension) of the horse's fetlock when the limb bears weight during locomotion. The suspensory apparatus creates an elastic hammock for the fetlock to "sink into" when the limb is weighted. These soft tissues of the suspensory apparatus are prone to injury if the horse's limb hyperextends during a competitive event. Equine athletes are particularly prone to breakdowns of the above-mentioned tissues during strenuous exercise.

Sports Medicine Boots are very securely attached to the horse's fetlock by multiple Velcro enclosures. These products have a long history of successful use in elite equine athletes competing in polo, hunter/jumper, rodeo, roping, and reining events. These products are widely used in racehorse training, and at this time are used during racing in Australia.

Logically, these SMB with multiple Velcro closure straps are much more secure and provide much more even lower limb support than traditional spiral wraps using a single Velcro closure.

The effects of the suspensory apparatus breakdowns on horse's competitive careers, and in some instances their very lives, as well as economic loss to owners are often devastating. It is my opinion, based on scientific research and extensive practical experience, that with appropriate use and application, the SMB are safe and offer significant protection to the suspensory apparatus and distal axial skeleton of all performing equine athletes. Additionally, regular use of the SMB on active horses can

be of significant help in prevention and treatment of many of the degenerative musculoskeletal conditions that develop with age and hard use and limit the horse's competitive abilities, such as navicular disease and ringbone. This support device may significantly contribute to the horse's ability to have a long successful athletic career.

CONCLUSIONS

The results of years of testing have demonstrated the average energy absorption of the SMB is between 20-30% and up to 45%. Interestingly, our research has also found that the energy absorption of the SMB actually increased after the product was "broken in."

The use of support bandages is common with athletic horses. Research on the SMB supports the concept that appropriate use of boots can absorb some of the negative energy associated with strenuous performance. This energy absorption of the SMB can help prevent tendon, suspensory ligament and other musculoskeletal damage to our equine athletes. Leg injuries are the major cause of loss of use of athletic horses.