

## **SHOCKWAVE THERAPY FOR THE HORSE**

by Dr. Laura Harris

Shockwave therapy is a relatively new treatment option for horses. Because of its recent emergence in equine veterinary medicine there is a lot of confusing information available in popular magazines and on-line. How does it work? When should we use it on the horse? When shouldn't we use it? Is it covered by the majority of equine insurance companies?

### **HOW DOES IT WORK? - THE TECHNICAL (CONFUSING) PART:**

Shockwave therapy in equine medicine is not the application of electrical current or pulses. It is the application of electrically generated acoustic (sound) waves to body tissues. It is similar to ultrasound because shockwave equipment sends a wave-like pulse into the tissue from a position outside the body. The energy of the acoustic (sound) wave produced by shockwave equipment is approximately 100 times higher than the energy of the acoustic (sound) wave produced by diagnostic ultrasound units used in equine veterinary medicine. While the acoustic (sound) wave produced by diagnostic ultrasound equipment does not distort body tissue as it enters, travels through, and then rebounds back out of the body tissues to be picked up by the ultrasound probe; the higher energy acoustic (sound) wave produced by equine shockwave equipment does distort the denser body tissues upon initial contact and again at rebound. The "shockwave" wave or pulse compresses denser body tissues such as ligaments, tendons, and bone on its initial journey into the body and then as the "shockwave" wave or pulse recedes these denser body tissues rebound and expand at the cellular level. So, while ultrasound waves rebound without tissue distortion and provide the viewer with a computer generated visual image of body tissues, "shockwave" waves do distort the denser body tissues and thereby essentially "massage" the denser body tissues at the cellular level.

This micro-manipulation of the denser body tissues such as ligaments, tendons and bone by the shockwave acoustic (sound) wave stimulates neovascularization (growth of new blood vessels in tissue) and the production of fibroblasts and osteons (cells that heal tendon, ligament and bone). The cellular "deep tissue massage" produced by shockwave therapy also appears to provide some degree of analgesia (pain control), improve healing rates in skin wounds, and produce improvement in infected injury sites.

### **WHEN SHOULD WE USE SHOCKWAVE THERAPY? :**

The list of equine injuries that can be treated using shockwave therapy is extensive. Injuries in the equine lower leg including suspensory ligament damage, bowed tendons, bucked shins, osslets, "splints", splint bone fractures, navicular syndrome, ringbone, and various arthritic conditions of the knee and hock respond well to shockwave therapy. Muscle strains and soreness (primarily muscles of the shoulder area, back and hip) whether from athletic injury or poorly fitted tack respond well to shockwave therapy. Shockwave therapy compliments other treatment methods including massage, physical therapy, acupuncture, aquatherapy, swimming and surgery. It can improve circulation to damaged tissue, making medications more available to the site of injury. Additionally, shockwave treatment can be used to shorten convalescent time after surgery.

Because the use of shockwave equipment in equine medicine is developing rapidly

additional applications will emerge over time. And, contraindications for the use of shockwave therapy will also become evident.

## **WHEN SHOULDN'T WE USE SHOCKWAVE THERAPY?**

Care must be taken to avoid directing the shockwave probe toward large, thick-walled vessels, air-filled structures like the brain and the lungs, large peripheral nerves and the brain. Damage can result due to the manner in which the acoustic waves of shockwave therapy impact these specific tissues and the tissues the border them.

Additionally, due to the localized reduction of pain perception that can follow shockwave therapy, it is important not to over work the horse and re-injure the treated area. Horses should not return to full work for as much as three to four days post-treatment. This pain reduction phenomenon is significant enough that the FEI and the various racing commissions have established waiting periods between shockwave therapy sessions and return to competition.

## **FINANCES - THE BOTTOM LINE**

Shockwave equipment is relatively expensive and the probes that produce the acoustic waves have a finite lifespan before replacement. Most sites require between 500 and 1000 pulses (waves) per treatment session and between two and three sessions at ten to twenty-one day intervals. Based on an average billing structure nationwide, most veterinarians charge about 0.30 to 0.40 per pulse or \$300 to \$400 per thousand pulse session. Some horses require tranquilization.

The VersaTron system manufactured by Saunawave ( [www.saunawave.com](http://www.saunawave.com) ) is currently the only electro-hydraulic shockwave equipment designed specifically for use in the equine industry. It is the equipment currently in use at the majority of university level research facilities. Consequently, treatment with VersaTron equipment is the most likely method to be subsidized by the major equine surgical medical insurance providers.

## **IN CONCLUSION**

Shockwave therapy is an exciting, emerging treatment modality in the equine industry. When utilized to enhance healing in the horse it is an effective, low risk, non-invasive treatment option alone or in conjunction with other treatment methods.