



## SHOCKWAVE THERAPY QUESTION AND ANSWER GUIDE

### WHAT IS SHOCKWAVE?

A shockwave is a pressure wave – any action that displaces its surrounding medium is a shockwave. The ripple created when a stone is thrown into a pond is a shockwave. The shockwaves used in equine medicine are generated in a fluid medium inside a transducer head and are then transmitted readily through skin, fat, and muscle. The high energy waves are focused within the transducer head so that the shockwave can be directed to the precise area of the injury. When shockwaves hit an area of higher acoustic impedance, such as bone, the waves slow dramatically and a large amount of energy is released into the surrounding tissue.

### WHAT CAN SHOCKWAVE THERAPY DO?

Shockwave therapy has been shown to:

- Stimulate new bone growth
- Increase cell permeability and stimulate the release of a cascade of healing and growth factors that contribute to the healing process
- Stimulate stem cells in the animal's body to be directed to the treated area
- Cause neovascularization (ingrowth of new blood vessels)
- Possibly stimulate fibroblasts, the cells that generate new connective tissue



### DOES SHOCKWAVE WORK ON EVERY CASE?

No, there is no treatment that is successful in every case. Shockwave therapy is one of the most exciting therapies to become available to veterinary medicine in quite some time. It is extremely important to have an accurate diagnosis and a clearly defined area of injury in order to direct the shockwave to the appropriate area.

## *WHAT CAN SHOCKWAVE TREAT IN HORSES?*

Shockwave therapy has been successfully used to treat many soft tissue and bony problems, both acute and chronic. These include, but are not limited to:

- Suspensory ligament tears and strains
- Suspensory injuries with avulsion fractures
- Tendon tears and strains
- Osteoarthritis
- Collateral ligament injuries
- Navicular syndrome
- Ringbone
- Joint inflammation and pain
- Back pain
- Neck pain
- Muscle tears and strains
- Repair ligament injuries
- Infected or large wounds
- Burns



## *WHAT IS THE TREATMENT PROTOCOL?*

The precise treatment protocol depends on the diagnosis of each individual patient. Treatment varies in the number of shockwaves administered and the energy of those shockwaves. Most conditions are treated a total of three times spaced at 2-3 week intervals. Occasionally, additional treatments will be required in more severe injuries. The treatments are easily performed at your facility with the horse under mild sedation.

## *WHEN WILL RESULTS BE SEEN?*

Typically, the horse will start to see some reduction in pain and/or swelling within hours. This will generally last 2-4 days and then the horse will return to close to the original status. Then, over the next two to three weeks, actual healing will take place.

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## *WHAT CAN SHOCKWAVE TREAT IN SMALL ANIMALS?*

Shockwave therapy has been successfully used to treat many soft tissue and bony problems, both acute and chronic. These include, but are not limited to:

- Hip dysplasia

- Non-union fractures
- Degenerative Joint Disease
- Spondylosis
- Lumbosacral pain
- Osteoarthritis
- Tendon and Ligament injuries
- Bursitis
- Muscle Tears and Strains
- Wounds
- Lick granulomas



### *WHAT IS THE TREATMENT PROTOCOL?*

The precise treatment protocol depends on the diagnosis of each individual patient. Oakhill Shockwave is an ambulatory service and comes to the office of your regular veterinarian. Together, Dr. Johnson and your regular veterinarian will determine the optimal treatment regime for your pet. Treatment varies in the number of shockwaves administered and the energy of those shockwaves. The typical shockwave treatment protocol for dogs calls for 2 treatments spaced at an interval of 2 to 3 weeks apart. Occasionally a third treatment will be required, and in some cases a pet will benefit from a regular schedule of “booster” treatments.

The beneficial effects of shockwave therapy are frequently long lasting and may provide an increased comfort level for the pet for 6 months to 1 year or longer. Some animals will require a short acting anesthetic for the procedure. Multiple areas can be treated at one time.

### *WHEN WILL RESULTS BE SEEN?*

Many animals will see remarkable reduction in pain almost immediately. Typically, the animal will start to have a reduction of pain and/or swelling within hours. This will generally last 2-4 days and then the animal will return to close to the original status. Then, over the next two to three weeks, actual healing will take place. Shockwave therapy is an excellent option for those animals that can't tolerate daily anti-inflammatory medication or those animals that are difficult to treat on a daily basis.

### *ARE ALL SHOCKWAVE MACHINES EQUAL?*

Absolutely not. There are several machines currently marketed as shockwave machines that do not generate a true shockwave. They generate what is called a ballistic or radial wave. The physics of this type of wave are completely different from that of a true shockwave. A ballistic or radial wave is created when a projectile is rapidly accelerated by compressed air – it looks like a small jackhammer. The problem with this type of wave is that all of the energy is deposited at the skin, and the energy drops off rapidly as you move away from the skin. The result being that unless the injury is at the skin, the

injured area is not receiving the necessary energy to help the healing process. Additionally, since the wave is not focused with this type of machine, the entire area around the treatment site is receiving the wave, which can potentially have harmful effects.

It is also important to recognize that not all focused shockwave machines are equal. There are now some focused shockwave machines on the market that advertise a deeper penetration of the shockwave into the tissue. The problem with these machines is that the focal zone for the release of the shockwave energy is so concentrated, almost like a pinpoint, that there is potential for tissue damage with this type of machine. Additionally, with this type of machine, because the focal zone is so small, there is a much greater likelihood of missing the desired target tissue or injury, thereby rendering the treatment useless or worse.

### *WHAT EQUIPMENT DOES OAKHILL USE?*

Oakhill Shockwave uses a focused, electrohydraulic machine manufactured by Healthtronics (HMT). This machine is currently used in 18 different university veterinary hospitals and is largely considered to be state of the art. With this machine, the shockwaves are focused so that they can be directed precisely to the particular area of injury. Additionally, the energy level and the depth of penetration of the shockwaves can be varied to suit the injury.

