



HIGH-POWERED PULSED ELECTRO-MAGNETIC FIELD THERAPY AND THE EQUINE ATHLETE

PEMF (Pulsed Electro-Magnetic Field) Therapy is another method of utilizing a magnetic field, somewhat like static magnets, which have been used for centuries. The Yellow Emperor's Canon of Internal Medicine describes treating acupuncture points with lodestone, which emits a naturally occurring magnetic field, to relieve painful conditions. In the middle ages, magnets were very popular as they were thought to be a cure for almost any malady. Fast forward to the 20th century, when magnetic bracelets, beds, rings, belts, blankets, etc., have been sold to treat all manner of problems, from athlete's foot to insomnia. Almost everyone has heard of using magnets therapeutically.

Today, PEMF devices are a bit more complicated to use than just placing a magnet on the tissue. PEMF systems are composed of loops of copper wire, through which a current of electrical energy is delivered. The current is turned on and off a number of times per second, surging through the loop. The magnetic field expands around the loop, and then collapses, expands and collapses again with the pulse of current. One of the benefits of PEMF versus static magnets is that the fields are typically much larger, so you do not have to place the PEMF loop precisely on the area needing therapy. Given the correct amount of current and the optimum number of loop windings, the loops for a high-powered PEMF device can emit a measurable magnetic field up to 18 inches from the surface of the loop. This makes it easy to use on equine patients, by strategically placing the loops in known problem areas like joints and major muscle groups. In addition, PEMF patches and beds are now widely used in small animal rehabilitation centers to assist in therapy for degenerative conditions like arthritis and hip dysplasia. For thoroughbred horses, after short treatments over several days, owners and trainers can generally see and feel an improvement in the way the horse moves.

SCIENTIFIC STUDIES ON HIGH-POWERED PEMF

There is little scientific research because high-powered PEMF devices are a relatively new category of PEMF device. However, thousands of university level case studies exist about the use of PEMF on hundreds of indications, from arthritis to edema to neuropathy on humans. The high-powered devices were developed under the theory that if a weak PEMF field has benefit, then a very large PEMF field will generally yield a faster and much better result. These systems make a characteristic noise when the field peaks, sounding like a crack or snap.

EQUINE APPLICATION

Over the last several years, we have seen the introduction of high-powered PEMF systems into race tracks, stables and barns. These beneficial effects are harnessed to treat equine tendon and ligament injury, sore backs, sore stifles, chronic hock soreness, sore shoulders, non-union fractures, laminitis, stone bruises, and non-healing wounds.



Treatments typically last 30 minutes, and are not stressful; rather they are calming and relaxing. When placed on a horse, the horse visibly and sensitively reacts to the large magnetic field charge. The operator of the system holds the loop on or over area of the body of the horse. Treatment providers are also subjected to this large PEMF field. The question arises “Can humans be successfully treated with this same device?” Yes, they can. It is not unusual to find owners of high-powered PEMF devices treating themselves, family members and friends.

TREATMENT OBJECTIVES

Treatment goals are to restore normal motion and neurological firing patterns to the affected spinal joints, release adjacent tight and unbalanced muscles, break up scar tissue and adhesions, disperse lactic acid and other metabolic waste products. High-powered PEMF technology is used to facilitate rapid removal of waste products from the treated tissues and draw in new blood flow, nutrients and oxygen. The PEMF also enhances circulation of synovial fluid through joint capsules that have been mobilized.

THE EFFICACY OF A HIGH POWERED PEMF DEVICE

To be effective, the device must create a PEMF strong enough to completely penetrate the injured area at a therapeutic level. The challenge is that the strength of a PEMF signal dissipates rapidly with increased distance from a PEMF loop. Many times an injured area can be several inches below the skin. If a product is not properly designed, the PEMF will drop below therapeutic levels before reaching the site of injury, rendering the PEMF device less effective. Greater intensity (increased gauss levels) generally yields greater benefits. Deep blockages, scarring and trauma of connective tissue, ligaments, etc., may be present in the area being treated. The magnetic field radiates only so far, as the body's skin, muscles, sinew, fat, bone and muscle tissues hinder the penetration of the magnetic field. When using a

high-powered PEMF device, maximum penetration can be achieved as the intensity setting and resulting gauss levels are increased.

WHAT IS A TYPICAL TREATMENT PROTOCOL?

The PEMF delivery loops are brought closer until they are in contact with the horse. Intensity is increased or decreased generally based upon the comfort level and response of the horse. The loops may be placed in a position of straddling the lower cervical muscles on one side of the neck. After approximately one minute, the loops are switched to the other side of the horse's neck. This continues for 8- 10 minutes, then a large loop is used for the middle and lower back, hips, and gluteal regions. The intensity is set to where the back muscles visibly pulsate when the loop is about



1-2 cm above the surface. The loop can be moved closer or further away during treatment to vary the intensity. About 1-2 minutes can be spent over the lumbar region, then move up to the saddle region for 1-2 minutes varying the position slowly from upper to lower thoracic. Then the loop is moved back to the lumbar and hip region where it is moved over the gluteal muscles first on one side, then the other. 1-2 minutes spent over each region should amount to about 10 minutes total for areas covered with the large loop. 2-4 treatments are recommended (all therapies combined with PEMF) spaced over 1-2 weeks depending on the case, gradually increasing time between treatments until the horse reaches a point of maximum improvement. Regular weekly treatments are recommended for competitive horses.

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