

## Equine Acupuncture – A Scientific Approach

Laura Wodzinski, DVM

Acupuncture has been a part of Traditional Chinese Medicine for over 5,000 years and has grown in popularity in western medicine in the last few decades.<sup>2</sup> With more evidence-based research emerging in human and veterinary medicine proving its effectiveness, it is becoming more recognized as a valid treatment modality in medicine. The World Health Organization has concluded that acupuncture is a valuable therapy in treating several human diseases. But how does this seemingly “voodoo” therapy of needling work?

The exact mechanism of acupuncture has yet to be discovered, in the last 5,000 years, however, numerous responses to needling have been documented in thousands of evidence-based studies. One of the most common uses of acupuncture treatments is for chronic pain. To explain a mechanism of how acupuncture can provide analgesia in chronic pain, consider this: You are chopping up apples to feed you horse the perfect bite-sized portions, when you accidentally slice you finger with the knife. Your first reaction will be an involuntary reflex originating from a fast nociceptive fiber signal to your brain telling you to pull your hand away. The second reaction is to grip your cut finger an apply pressure. The pressure provides pain relief by activating mechanoreceptors found under the skin and the original sharp pain ceases. The brain is only able to handle one source of pain at a time, as described by the Gate Control Theory of Chronic Pain. With the pressure applied, the body is able to down regulate the sharp pain from the cut and allow your body’s “internal pharmacy” to be activated.<sup>3,6</sup> In chronic pain, the fibers are thick and slower transmitting fibers that cause a more dull and throbbing pain. In contrast, sharp pain is associated with fast conductive fibers that transmit messages to the brain very quickly to create a response that will protect the body. When acupuncture needles are inserted into the skin and tissues, they cause micro-inflammation at the site and stimulate the fast fibers to carry signals to the brain, overriding the slow, chronic pain fiber messages.<sup>3</sup> With this new, fast signal from the acupuncture, the brain is able to activate its neurochemical

pharmacy to produce substances such as endorphins, serotonin, and opioids that make the animal feel good and down regulate pain. This process is known as neuromodulation.

The Central Nervous System (CNS) has a major role in the effects of acupuncture. By placing needles in acupuncture points, or areas that are richly supplied with nerve endings, it causes stimulation that creates a signal that is transmitted to the spinal cord, and then the brain. Once at the brain, key centers including those responsible for digestion, cardiopulmonary function, and the endocrine system are affected and a response can be created. Recent studies have used functional magnetic resonance imaging (fMRI) to evaluate the effect of specific acupuncture points and their direct effect on areas of the brain.<sup>2</sup> In addition to direct nerve stimulation, the needle engages with collagen fibers, connective tissue matrix, and vessels under the skin that with manipulation of the needle causes activation of mechanoreceptors (a receptor that respond to pressure and transmit messages to the CNS), nociceptors (sensory receptors), vasodilation, and tissue biochemistry changes.<sup>1</sup>

Another use for acupuncture is relieving trigger points. A myofascial trigger point is described as: "a hyperirritable spot in skeletal muscle that is associated with a hypersensitive palpable nodule in a taut band."<sup>1</sup> Most humans can find these in their neck and shoulders after being hunched over a computer all day. In the equine patient, these trigger points can be associated with lameness, weakness, sore backs, and decreased flexibility. Excessively strenuous activities, repetitive strains, or even stall rest can precipitate the development of triggers points in addition to disturbances such as poor shoeing and an improperly fitted saddle.<sup>1</sup> Acupuncture works right at the site of the maximum soreness by inserting the needle directly into the center of the trigger point, and twisting it back and forth until the muscle fibers release. Localization of trigger points is done in our animal patients by palpating tight bands and watching the animals' response in the form of a twitch or avoiding the pressure. Trigger points can form in any muscle at either the muscle belly or the myotendinous junction. They are not necessarily correlated with acupuncture points.

NEW ENGLAND EQUINE MEDICAL & SURGICAL CENTER  
15 MEMBERS WAY · DOVER NH 03820 · [WWW.NEWENGLANDEQUINE.COM](http://WWW.NEWENGLANDEQUINE.COM) · 603.749.9111

### **How can acupuncture be used to treat my horse?**

In the equine patient, acupuncture can be used for a variety of musculoskeletal issues such as back pain, neck stiffness, laminitis, poor saddle fit and much more. Acupuncture treatments typically start with a “scan” of points that consists of running an acupuncture pen (or needle cap or Sharpie in a lot of cases!) over the horse to determine areas of sensitivity. Over sensitive areas, the horse will often flinch or move away from you, indicating there is some level of soreness at that site. This soreness can be due to a primary problem, or can be secondary muscle soreness from compensating for lameness somewhere else in the body. Regular acupuncture treatments can reduce muscle soreness during increased work or even improve comfort during their routine show schedule. Back soreness is a common condition that acupuncture can improve whether it is from an ill-fitting saddle or kissing spine lesions. Regular acupuncture treatments may even extend the interval between kissing spine treatments or mesotherapy.

Another common use for acupuncture in the equine patient is colic. Ileus, or decreased or absent gastrointestinal motility, is a common complication following colic surgery that can significantly compromise the recovery of the horse. The motility of the gastrointestinal tract is influenced by the sympathetic nervous system, the “flight or fight” response, and the parasympathetic nervous system, the “rest and digest” portion of the nervous system.<sup>4</sup> Acupuncture aims to manipulate these systems through neurotransmitters acting on the autonomic nervous system to promote intestinal motility. Acupuncture should be considered and adjunctive treatment to colic with Western medicine therapies and diagnostics being performed first.

Reproductive disorders in both mares and stallions can be treated with acupuncture through neuro-hormonal regulation, pain relief, and smooth muscle contractions. In the stallions, issues including loss of libido, infertility, and poor semen quality can be improved using acupuncture.<sup>5</sup> In mares, cycle issues including failure to ovulate, sporadic heat cycles, or anestrus can be better regulated through acupuncture via mediation of the nerves that regulate and control the

reproductive tract and the pituitary gland which influences hormone secretion.<sup>5</sup> Additionally, acupuncture's effect on smooth muscle contractions can aid in the eliminate of fluid in the uterus and urine pooling that could compromise conception.<sup>5</sup>

Although seemingly abstract, acupuncture is a science-proven treatment modality that can help in a variety of diseases, most notably chronic pain. I recommend acupuncture treatment to my clients with the caveat that, like some pharmaceutical medications we take, acupuncture may not work for all animals or people or may take several treatments to see an effect. This treatment modality has very few negative side effects, is minimally invasive, and may have a profound positive response in your equine athlete – what are you waiting for?

#### **References:**

1. Robinson, Narda G. "One Medicine, One Acupuncture." *Animals* 2.4 (2012): 395-414. Web.
2. Dorsher, Peter T. "Neuroembryology of the Acupuncture Principal Meridians." *Medical Acupuncture* (2017)
3. Sypniewski, Lara. "Dog Acupuncture." TEDxOStateU. 07 Feb. 2017. *YouTube*. Web. 07 Feb. 2017.
4. Story, Melinda. "Equine Gastrointestinal System." *Medical Acupuncture for Veterinarians*. Colorado, Fort Collins. 07 Feb. 2017. Lecture.
5. Holt, Timothy. "Veterinary Medical Acupuncture and Reproduction." *Medical Acupuncture for Veterinarians*. Colorado, Fort Collins. 07 Feb. 2017. Lecture.
6. ABPP, William W. Deardorff PhD. "Modern Ideas: The Gate Control Theory of Chronic Pain." *Spine-health*. N.p., n.d. Web. 08 Feb. 2017.