

Perspectives on the Use of Mechanical Vibration in Equine Rehab

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HIGH FREQUENCY MECHANICAL VIBRATION

Whole body vibration is a therapeutic intervention used in equine rehab to increase blood and lymphatic circulation, induce muscle relaxation, and promote bone strength.¹ The concept uses a large vibration plate to accommodate the entire body weight of a horse. More recently hand held devices have been developed to localize vibration over specific body tissues.²

Rapid release therapy (RRT) is a mechanical unit that vibrates at a frequency of 60 Hz. The device is composed of several application surfaces depending on the type and location of tissues being treated (Figure 1). The purpose of RRT is to mechanically agitate soft tissues to induce a massaging effect, promote relaxation, reduce pain, and to treat sensitive areas of muscle and myofascial tissue. On a personal note, I have used the RRT on elite show jumping equine clients and have observed immediate effects of muscle relaxation and decreased tissue response to pain provocation tests (Figure 2).

Recently, researchers from Taiwan investigated the use of high frequency mechanical vibration, interferential current, ultrasound, and low level laser on the effects of microcirculation in the Achilles tendon.³ Outcomes of the study were enlightening. In short, the authors found statistical significance of increased blood flow to the Achilles tendon only upon use of ultrasound and a 30 Hz hand-held mechanical vibration device.³ Although not formally assessed in the study, the authors noted that mechanical vibration may have increased microcirculation even more than ultrasound. Further studies were recommended.

The purpose of highlighting a recently published study that used mechanical vibration as one option to promote microcirculation was not intended to serve as an in-depth critique of methods, results, conclusions, or limitations, but rather to highlight two important points. First, the use of mechanical vibration is not commonly used in the practice of physical therapy, and certainly not prevalent in peer-reviewed literature. However, it is a common intervention used in equine rehabilitation, especially in the athletic population, and is now supported to a limited degree by scientific evidence. Second, outcomes of the



Figure 1. Hand held mechanical vibration device (RRT).



Figure 2. Mechanical vibration applied to the lumbosacral region of a horse.

study by Chang et al³ should at the very least increase awareness of mechanical vibration as a potential intervention to be considered for the goal of increasing blood flow to tendon tissues with minimal vascularity.

CLINICAL COMMENTARY ON THE EVIDENCE-BASED PRACTICE AND MECHANICAL VIBRATION

Without question, scholarly exploration and dissemination of evidence has significantly advanced the science of physical therapy in recent years. Researchers have not only validated but also challenged many assertions and beliefs regarding the practice of rehabilitation. In 2014, the American Physical Therapy Association published a document entitled, "Five Things Physical Therapists and Patients Should Question."⁴ This document was created as part of a national campaign called "Choosing Wisely" initiated by the American Board of Internal Medicine Foundation.⁵

Five areas of physical therapy practice were identified by experts in the profession as being questionable by way of clinical practice based on scientific evidence. One of the items listed on the document is, "Don't employ passive physical agents except when necessary to facilitate participation in an active treatment program."⁴ This statement implies that the use of passive physical agents alone, without active engagement by the patient, is not supported by current evidence. Therefore, even suggesting that a relatively new physical agent such as high level mechanical vibration might be of interest to physical therapists may seem a bit out of context given the current de-emphasis placed on the use of modalities in patient care.

It is true that discussing one physical agent as a potential source of patient care can be dangerous. Therefore, I share words of caution to anyone who may reason that using mechanical vibration alone constitutes "good" practice of physical therapy. In fact I propose just the opposite, and agree whole heartedly with the evidence summarized by the APTA Choosing Wisely campaign indicating that physical agents are simply adjunct to a more holistic plan of care that better defines the practice of physical therapy. The positive outcomes reported by Chang et al³ of using mechanical vibration to induce physiological change are encouraging but warrant further studies to validate this therapeutic agent in animal rehabilitation.

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Photos courtesy of Kirk Peck and Sharon Classen 2015.

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