

advance

for Physical Therapists & PT Assistants

Eliminating Pain

Integrating MPS neuromechanical therapy may improve functional outcomes

Electrical stimulation in various forms has been a mainstay of physical therapy for many decades of physical therapy for many decades. Ever since the 1960s, when Melzack and Wall developed the Gate Control Theory of Pain (using AC-current), manufacturers have produced e-stim units for the control of pain.

In the 1970s, Pomeranz and Chang discovered acupuncture-like TENS (using DC current) in controlling chronic pain, further accepting the role of e-stim in the minds of the medical establishment. The local application of both AC and DC stimulation to both trigger and motor points has long been successfully used to relax painful contracted muscles.

Acupuncture, acupuncture-based technologies and acupuncture-like TENS (ALTENS) have been used for many years for the treatment of pain disorders both inside and outside of the physical therapy setting. Currently therapists apply alternating (AC) at low frequencies to localized acupuncture points via pads (TENS). Unfortunately, the results of these trials often leave the patient either with unsatisfactory outcomes or dependent on drugs for pain management.

Current research is focusing on microcurrent point stimulation (MPS) therapy, a specialized form of concentrated direct current microstimulation. MPS is a hybrid modality that applies low frequency microcurrent stimulation to acupuncture, motor/trigger points and throughout contracted motor bands, in a specific step-by-step order. With this approach, MPS has recently been clinically reported to provide immediate pain relief, decrease muscle tonicity and accelerate tissue repair for musculoskeletal disorders.

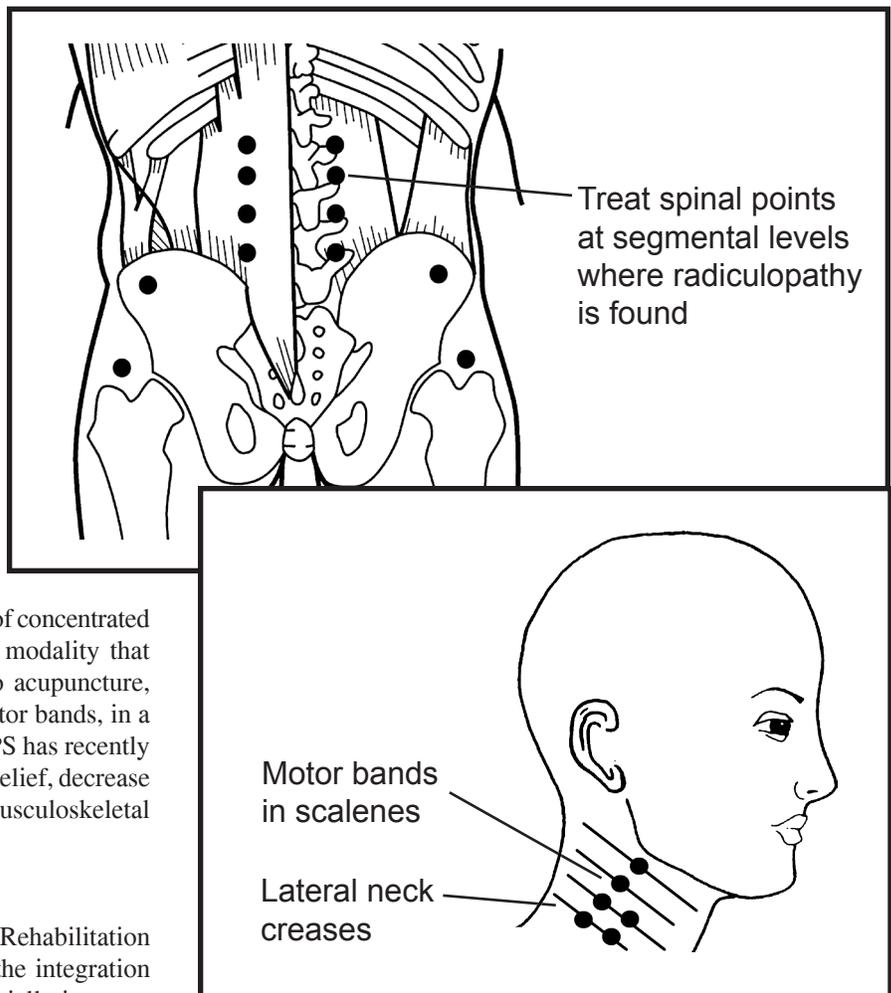
Research

Research initiated at the Florida Hospital for Rehabilitation and Sports Medicine, Orlando, strongly suggests the integration of MPS into a physical therapy setting can substantially improve outcomes. "We are seeing our patient pain levels drop from a 7-8/10 level to a 1-2/10 level in just a few treatments," said Mitch Freed,

MD, regional medical director at Florida Hospital.

"MPS more than doubles our outcomes that we used to receive from the combination of all traditional physical therapy modalities put together."

Dr. Freed said his staff compared traditional modalities (e.g., TENS, heat, cold) used alone to traditional modalities integrated with MPS in two treatment groups of 23 patients each. The two-tailed tests revealed that both groups were comparable at the onset of research with regard to age ($p = 0.10$), onset of pain ($p = 0.83$) admission pain level ($p = 0.81$). However, the outcomes were significantly different. The MPS group had a significantly



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—Mitch Freed, MD

greater reduction in pain as compared to the standard treatment group ($p = 0.0002$), doubling the pain outcomes from 38.6 percent to 79 percent.

“These numbers enabled us to push forward and aggressively integrate MPS into our physical therapy facilities,” said Dr. Freed. “MPS is applied non-invasively, is well tolerated by patients, and usually can be administered in five to 15 minutes.” Patients can also be instructed on MPS home use (as with TENS), which substantially drops the injury relapse rate with noncompliant patients, he said.

Why It Works

MPS therapy first identifies hip and sacral imbalances, which are believed to precipitate gait asymmetry and leg length discrepancies, which are leading causes of chronic pain. They can be identified and quickly corrected using MPS stimulation and manual techniques.

Then, a neurological examination of the patient, observing for manifestations of radiculopathy (nerve root entrapment and spinal degeneration) is performed at the dermatome nerve root involved with the injury. MPS stimulation is then applied to paraspinal trigger points, in order to reduce muscle tone and nerve root entrapment.

Distal acupuncture points are then used to balance the autonomic nervous system (ANS) and to treat any limbic components to the patient’s pain. When this approach is applied with MPS stimulation, multiple sites can be treated in one session, quickly identifying the root cause of pain and often producing substantial functional outcomes.

MPS stimulation requires a square, pulsed, direct current (DC) wave, at a frequency of 2.5 hertz. Research proves this stimulation and frequency decreases muscle tone (by repolarizing contracted muscle tissue), and facilitates endorphin release into the bloodstream. MPS therapy concentrates this stimulation into a fine tip (similar to a ball-point pen), delivering a tiny microcurrent stimulus to special combinations of acupuncture and trigger points.

MPS devices have several advantages over prior TENS technologies, including a skin resistance sensor that accurately locates trigger/acupuncture points and provides an audible and visual feedback to the user. The MPS delivery system uses a retractable “ball-point” tip that is applied directly onto acupuncture/trigger points, minimizing any spreading effect and decreasing total treatment time to less than 10 minutes.

The fast application of MPS permits multiple anatomical sites to be treated in one session. This presents an enormous advantage with patient assessment. If a patient is assessed after treating each site or stage, the therapist can quickly determine the anatomical area(s) producing the most pain relief and strongest functional outcomes. Through a quick process of elimination, the primary and secondary regions involved with the patient’s pain condition may be isolated, and then eliminated with MPS therapy.

“MPS has some strong scientific basis, and is used on at least 80 percent of my patients, with enormous success,” said Larry Kopelman, PhD, PT, professor at Capital University, Columbus, OH. “I studied acupuncture stimulation in the early 1970s, and after 30 years in the field, I thought I had seen it all. MPS brought me to a new level. The sacral and gait balancing [through MPS] has strong osteopathic roots, it deregulates the ANS and restacks the vertebral segments for greater symmetry and less nerve entrapment,” said Dr. Kopelman.

Balancing the ANS is also a key to managing chronic pain. The treatment of acupuncture points with MPS therapy has been verified to deregulate the ANS through the pre- and post-evaluation with a heart rate variability monitor (which measures changes throughout the parasympathetic and sympathetic nervous systems). “Combining a system which can reduce nerve root entrapment and reduce the up-regulation of the nervous system is a massive leap forward,” said Dr. Kopelman.

“I took my first seminar and was immediately hooked,” said Andy dark, PT. “I learned innovative theories and protocols for chronic pain that I never learned in school. The day after my first seminar, I was making amazingly impressive subjective and objective changes in my patient base. These were patients whom I was treating for many visits before and making minimal gains. Soon I was treating not only my own patient load, but the other clinicians in the practice were shifting patients over to me to treat them.”

Clark reported that he has used many different modalities, including ultrasound, TENS, interferential, iontophoresis and manual therapies.

“The MPS therapy system is by far the best modality for the treatment of chronic pain, and is easily integrated with manual therapies and exercise,” he said. “I have used MPS on various types of diagnoses, including carpal tunnel syndrome, fibromyalgia, neck and back pain, sciatica, frozen shoulder, Bell’s palsy and CRPS, with most cases obtaining phenomenal success. As a PT, it is always gratifying to have a patient say, ‘you were the only person who helped me,’ and with MPS, I am able to hear that time and time again.”

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call 1-800-567-7246 (PAIN),
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email: info@MPStherapy.com**