A proven solution

How laser therapy can be used for the treatment of myofascial trigger points

BY PHIL HARRINGTON, DC, CMLSO

MYOFASCIAL PAIN SYNDROME IS AMONG THE LEADING DIAGNOSES OF PAIN MANAGEMENT SPECIALISTS[1] and is certainly a common complaint among patients seeking chiropractic care.

The role of myofascial trigger points (MTrPs) in myofascial pain syndrome (MPS) is noticed every day in musculoskeletal clinical practice since first being identified by Travell and Rinzler in 1952.[2]

It could be argued that MTrPs identification and treatment have been a part of chiropractic practice from the very beginning.

Travell defines MTrPs as, "A hyperirritable spot in skeletal muscle that is associated with a hypersensitive nodule in a taut band. The spot is painful on compression and can give rise to characteristic referred pain, referred tenderness, motor dysfunction, and autonomic phenomena."[3]

Trigger points can be subdivided into "active" (those that refer pain at rest, during muscular activity, and upon palpation) and "latent" (those that only refer pain with the application of direct steady pressure). MTrPs can arise in any muscle group, but are more common in postural muscles such as the levator scapulae, upper trapezius, and quadratus lumborum.[4]

Patients with active trigger points frequently complain of widespread pain, which results in reduced active range of motion. Joint swelling and neurological deficits are typically absent upon examination, and the pain from MTrPs does not follow a dermatomal or neurologic pattern.[5]

Postural stress, inefficient biomechanics, and repetitive use are frequently implicated among the many factors that could be causing MPS. Gunn describes chronic muscle shortening as a key to MPS.[6]

Through the years, treatment for MTrPs has included cross-friction massage, spray and stretch, trigger point injection, dry needling, electrical muscle stimulation, and ultrasound, to name a few. Recent research is pointing to the efficacy of using therapeutic lasers to address MTrPs and MPS.

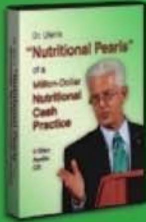
Waves and classifications

Therapy lasers of various wavelengths have shown promise in treating MTrPs, improving local microcirculation and oxygen supply to hypoxic cells in the trigger point areas while also removing the collected waste products.[7]

Normalization of microcirculation interrupts the pain cycle and allows for restored pain-free range of motion. Gunn points out that infrared lasers (wavelength greater than 750nm) are suitable for deeper lesions.[8]

Lasers are classified according to the degree of hazard to the eye by the American National Standards Institute, with the classification number increasing with output wattage.[9] Therapy lasers can be class 2, 3a, 3b, or 4, with 500 milliwatts being the cutoff between the last two.

Trigger point treatment with lower powered therapy lasers (class 2, 3a, and some 3b) would involve holding the laser applicator directly over the lesion for a period of time until the therapeutic dosage is delivered; whereas treatment with a higher powered therapy laser (some class 3b and all class 4)



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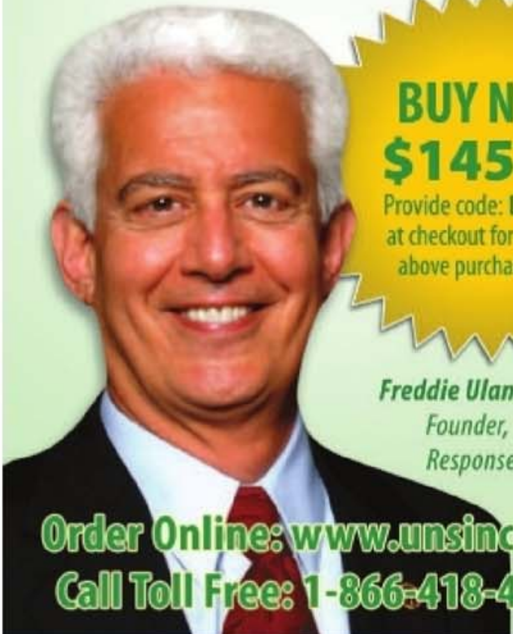

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would involve sweeping the laser applicator over the area, delivering a therapeutic dosage to a large volume of tissue.

Tuner and Hode describe trigger point treatment with a lower powered laser as follows, "In the treatment of trigger points and acupuncture points, the dose is often said to be a number of Joules per 'point'...(w)e have defined a 'point' as an area that is 5 millimeters in diameter (equal to 0.2 square centimeters) or less.

"This means that if we hit the skin with the light concentrated to this small area and administer one Joule, we have given one Joule 'per point'...and the dose is 5 J/cm2."[10]

What is it good for?

Many chiropractors are employing class 4 therapy lasers in the treatment of MPS and other conditions.

Class 4 laser therapy is proven to improve healing in traumatized muscles[11] and has been shown to be a treatment option for patients with lumbar stenosis accompanied by low back and leg pain.[12]

Class 4 therapy lasers used in the U.S. have output power up to 12 Watts, and do not cause damage to tissues when applied appropriately.[13]

A 2002 study suggests that laser therapy is effective for treating pain, muscle spasm, and morning stiffness associated with fibromyalgia, and suggests that laser therapy method is a safe and effective treatment in the cases with fibromyalgia.[14]

Rickards in 2006 concluded that, "...there is significant evidence that laser therapy may be effective as a short-term intervention for reducing pain intensity in myofascial trigger point pain of the neck and upper back."

Rickards went on to point out there is insufficient data to provide evidence of transcutaneous electrical nerve stimulation beyond immediately after treatment; and that some evidence showing that therapeutic ultrasound was no more effective than placebo.[15]

The Council on Chiropractic Guidelines and Practice Parameters (CCGPP) in 2009 examined 112 articles for evidence in treating MTrPs.

It found strong evidence to support laser therapy; moderate support for transcutaneous electrical nerve stimulation, acupuncture, and magnet therapy; limited evidence for electrical muscle stimulation, high-voltage galvanic current, and interferential current; and weak evidence for ultrasound therapy.[16]

One study used a gallium-aluminum-arsenide (GaAlAs) diode laser to target cervical MTrPs, and found a statistically significant difference in pain attenuation between the treated and placebo groups, both immediately after treatment and three months later.[17]

Another examined 243 patients who were treated with Helium-Neon (HeNe), GaAlAs, and Gallium-Arsenide (GaAs) and concluded that laser therapy could be used as a

stand-alone therapy, or as a supplementary treatment incorporated with other therapeutic procedures.[18]

In conclusion, laser therapy is proven to be a safe and effective treatment for MTrPs and is easily implemented into any chiropractic practice. Whether used as a stand-alone treatment or in combination with chiropractic techniques, laser therapy undoubtedly has a "bright" future.

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