

ABOUT MYOFASCIAL PAIN AND DYSFUNCTION

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What is Myofascial (Shortened Muscle-Connective Tissue) Pain Syndrome?

Myofascial Pain is a common but often overlooked and misunderstood source of pain and/or autonomic phenomena referred from active Myofascial Trigger Points (MTrPs) with associated dysfunction.

What is a Myofascial Trigger Point?

A Myofascial Trigger Point (MTrP) is a palpable hyperirritable locus in a taut band of muscle and connective tissue that, when compressed or palpated exhibits a **local twitch response** (LTR), is locally tender and, if sufficiently hypersensitive, gives rise to referred pain and tenderness, and sometimes, to referred autonomic phenomena and distortion of perception. A MTrP can be **active** or **latent**. **Active** MTrP produces a clinical complaint (usually pain) that the patient recognizes when the MTrP is digitally compressed or palpated. **Latent** MTrP can produce the other effects characteristic of a MTrP including increased muscle tension and shortening but do not produce spontaneous pain. A MTrP is not a **tender point**. Tender Points do not refer pain when digitally compressed or palpated. Both active and latent MTrP can cause significant motor dysfunction. It appears that the same factors which are responsible for the development of an active MTrP, to a lesser degree, can cause a latent MTrP. An **active Key** MTrP can induce an active **satellite** in another muscle. Reduction or inactivation of a key MTrP often also inactivates its satellite MTrP without treatment of the satellite MTrP itself.

What are the Symptoms Common to Myofascial Pain and Dysfunction?

1. Myofascial Pain (MFP) is referred from MTrPs in specific patterns characteristic of each muscle. The referred pain of MTrP is dull and aching, often deep with intensity varying from low grade discomfort to severe and incapacitating torture. It may occur at rest, or in motion. The referred pain can usually be elicited or increased in intensity by digital pressure at the MTrP or by penetrating the it precisely with a needle. Pain referred from MTrP does not follow a simple segmental pattern. Neither

does it follow familiar neurologic patterns, nor the known patterns of referred pain of visceral origin.

2. MTrP are activated directly by acute overload, overwork, fatigue, direct trauma, repetitive trauma, positioning, and chilling. Once MTrPs are activated the local physiology at that site changes. There is an increase in the release of acetylcholine at the motor end plate which triggers the release of ionized calcium from the sarcoplasmic reticulum which is not reabsorbed. This leads to further contraction of the muscles (myo filaments). This contraction of the myo-filaments further has a traction on the motor nerves causing pain. Other pain substances are released causing more pain. This is known as a vicious cycle. There is local compression of the blood causing an ischemic (lack of oxygen) condition. All of these factors lead to a local energy crisis in which a tremendous amount of ATP (Adenosine Tri-Phosphate) is utilized.
3. MTrPs are also activated by other MTrPs, visceral disease, arthritic joints, and by emotional stress.
4. Nutritional deficiencies and ergonomic demands often are contributing and perpetuating factors with respect to MTrPs.
5. Active MTrPs vary in irritation from hour to hour and from day to day.
6. MTrP irritability may be increased from latent to active status by factors discussed in item 2.
7. The signs and symptoms of MTrP activity can long outlast the precipitating event.
8. Phenomena other than pain are often caused by MTrPs.
9. MTrP can cause stiffness and weakness of the involved muscles.

How are Myofascial Trigger Points Treated:

Myofascial Trigger Points (MTrPs) may persist for decades, restricting range of motion and recurrently becoming to cause attacks of referred pain without involving other muscles. Nevertheless, a few treatment sessions may reduce or inactivate such MTrPs permanently.

Currently, a variety of techniques exist to reduce or inactivate MTrPs. They are as follows:

1. Dry needling (Acupuncture or hypodermic needle)
2. Wet Needling: injection of non-toxic substances such as procaine, lidocaine, isotonic saline, and homeopathic preparations (Traumeel or bee venom)
3. Stretch and Spray (Use of a skin refrigerant)
4. Ice Massage
5. Thermal Therapy (Heat)
6. Gua Sha (Frictioning/Therapeutic Scraping)
7. Percutaneous and Transcutaneous application of Micro-Current
8. Various forms of Bodywork (Manual Myofascial Release, Tuina, Shiatsu, Cranio-Sacral Therapy, Massage Therapy)
9. Addressing nutritional deficiencies and correcting ergonomic demands
10. Home program

Dry needling was found to be as effective as wet needling in terms of immediate reduction or inactivation of MTrPs. Good assessment and palpation skills, a clear understanding of the nature of MTrPs, and proper needle technique is tantamount to successful treatment and management of Myofascial Pain and Dysfunction.

The goal of treatment is to lengthen the taut bands of muscles and normalize the local physiology which is signaled by LTRs. The magnitude and amount of LTRs generated as a result of skillful needling is tantamount to the success of the treatment. This is also proportional to the gauge of the needle being used. In other words, a thicker gauge needle produces better results.

Patients are likely to experience muscle soreness following treatment. This is because the LTRs are actually muscles being subjected to do a tremendous amount of work in a short period of time. The resulting metabolic byproducts (lactic acid etc.) of this work, leaves the muscles somewhat sore and irritated. The soreness may last for twenty-four to forty-eight hours or wax and wane over a period of five days. Home stretching program and the application of moist heat are usually sufficient to manage this fall-out from treatment.