

# Myofascial Pain: What's All the Buzz?

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Myofascial Pain Syndrome (MPS) was brought to the attention of modern human medicine by Dr. Janet Travell in 1952 although it has been described in literature as long ago as the 16th century. Despite this, it has failed to enter mainstream medicine, especially in veterinary medicine. Many veterinarians do not even know of its existence! However, within the past decade this aspect of pain medicine along with many others has been steadily gaining a foothold in the general veterinary practice.

## What is myofascial pain?

The pathophysiology of myofascial pain is a complex syndrome involving in part, motor, sensory and autonomic nerve components. It is a myalgic condition in which muscle and tendon are the primary cause of pain. The syndrome is centered around the myofascial trigger point (MTrP). A myofascial trigger point is an extended contraction of a few muscle fibers that results in a painful knot. Simons, Travell and Simons define it as

“ a hyper irritable spot in skeletal muscle that is associated with a hypersensitive palpable nodule in a taut band. The spot is tender when pressed and can give rise to characteristic referred pain, motor dysfunction and autonomic phenomena.”<sup>1</sup>

Therefore all MTrPs have a sensory component, a motor component and an autonomic component. When the motor end plate is overstretched which can happen when only a few muscle fibers are activated then myofascial tension is increased in that fiber. An increase of tension of only 1% will evoke a 10 % increase in ACh release. With excessive release of ACh there is excessive motor activity. The local muscle contraction compresses local sensory nerves and blood vessels and reduces the supply of oxygen to the area. Decreased oxygen and increased metabolic demands of the contracted muscle fibers result in a depletion of the local ATP. This causes pre and post synaptic changes in the Calcium pump and leads to muscle spasms. Trigger points are formed which are painful and either excite or inhibit activity on motor activity in the muscle or its functionally related group. This inhibition causes poor coordination and muscle imbalances. There are also autonomic phenomena associated with MTrPs.<sup>2</sup>

## Etiology of MTrPs

### Mechanical issues

Acute trauma may activate MTrPs but does not perpetuate them. Sudden activation can occur with direct trauma, muscle strain, joint sprain or excessive or unusual exercise. Mostly commonly are formed with chronic muscle overload such as occurs with orthopedic injury, neuropathy, joint dysfunction or osteoarthritic pain. It is thought that low level muscle contractions, unaccustomed eccentric contractions or eccentric contractions in unconditioned muscle as well as maximal or sub maximal concentric contractions may lead to MTrP formation.

In OA the joint dysfunction and postural changes can activate and perpetuate MTrPs. With coxofemoral arthritis the muscles that frequently develop trigger points are the sartorius, tensor fascia lata, pectineus, rectus femoris and iliopsoas ( hip flexors). Due to the forward weight shift, they also develop in the triceps, infraspinatus and deltoid muscles. Because pelvic movement is compromised, and more lateral flexion of the spine occurs, the iliocostalis lumborum and lateral multifidi are also affected. If a dog is hopping on one back leg, trigger points can develop in the contralateral limb and hopping causes excessive eccentric contraction of the stifle extensors. In this leg we see MTrPs in the sartorius, tensor fascia latae, rectus femoris and vastus group. The lumbar paraspinals are also involved as they assist in ambulation.<sup>4</sup>

### Nutritional deficiencies and metabolic issues<sup>3</sup>

It is unknown if nutritional deficiencies or metabolic problems perpetuate trigger points in dogs but in humans they have been linked with certain deficiencies such as cobalamin, folate, iron deficiency, Vitamin D and B12 deficiency and metabolic diseases such as hypothyroidism and diabetes.

### Examination techniques<sup>3</sup>

MTrPs are diagnosed by palpation. 3 types of palpation are used: Flat palpation, Pincer Palpation and Snapping palpation. With flat palpation the finger pressure is applied at right angles to the muscle fiber compressing against the bone—this is used for the infraspinatus, supraspinatus and psoas muscle. With Pincer Palpation the muscle bands are pinched and rolled between thumb and fingers to detect taut bands. This works for the triceps, sartorial and tensor fascia latae. Snapping palpation is similar to pincer but the fibers are rolled under the finger similar to plucking a guitar string. Taut bands are palpated and usually animal is painful so jumps ( Jump sign)

## **Clinical cases**

### **Brooklyn the Rottweiler**

F/S 5 year old Rottweiler BCS 6/9, had TPLO LH 1 year ago and still not using leg well. Current pain medications included Meloxicam and Tramadol. On examination she had a large number of MTrPs in her iliopsoas, sartorial, TFL on the left side and Triceps bilaterally. All of her hip flexors were sore to the point she resent extension of her stifle and was vocal and aggressive with the iliopsoas test. Because Brooklyn had spent a lot of time with her leg contracted she had slight muscle contractions of the hip flexors due. The front leg MTrPs were due to compensation from weight shifting. Brooklyn was uncomfortable and her owners were frustrated.

Treatment: Sedation and dry needling

After one session Brooklyn was more comfortable and would allow her muscles to be touched. A rehabilitation program including acupuncture, UWTM, stretching, leg and core strengthening was able to proceed. Within 1 month Brooklyn was back to her normal self and was fully weight bearing.

### **Regi the wirehaired fox terrier**

Regi, 11 yr old F/S BCS 6/9 former agility dog, pain in sacral area, elbow arthritis, lagging in walks and not wanting to go many places. Owner felt she was depressed. She noticed Regi was walking “funny” in the front end and base wide in the hind end. She had had several rehabilitation sessions for strengthening and gait retraining as well as medication—Gabapentin, Amantadine, Chinese herbs, acupuncture—nothing seemed to be helping. My examination revealed myofascial pain in her iliopsoas, quadriceps, and sartorial and in the triceps and infraspinatus muscles of both front legs.

Treatment: Sedation and dry needling

Result: Regi continued rehab therapy but this time there was a big improvement. She went back to walking well and was no longer depressed.

Dry needling is the preferred method of treatment in myofascial pain syndrome in dogs. Dry needling involves the act of placing an acupuncture needle directly into the painful trigger point resulting in a complex cascade of events involving in part spinal reflexes, increased blood flow and an increase in the amount of energy available to the muscle. This causes the taut band of muscle containing the trigger point to relax and the pain relief is immediate. When Brooklyn’s owner picked up her dog after the first session, she was misty-eyed with relief when she saw Brooklyn walking normally as she came out to greet her. Dry needling imparts an immediate benefit but it generally requires several sessions to give complete relief. And unless the underlying cause can be found and completely treated, it eventually returns needing additional treatments, especially in the case of chronic conditions like osteoarthritis.

Dry needling is not taught in university settings. The only regular classes that a veterinarian can take is through the Canine Trigger Point Therapy Program given through Myopain Seminars and taught by Drs. Jan Dommerholt and Rick Wall.<sup>4</sup>

## **References**

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4. Wall, Rick. Myopain Seminar Course Notes, Canine Trigger Point Course, [www.myopainseminars.com](http://www.myopainseminars.com)