

## Infrared Thermal Imaging of Myofascial Trigger Points

Infrared thermography (IRT) has been well-documented in both the medical and chiropractic literature as a useful diagnostic tool for the detection of myofascial pain syndrome and trigger points. Myofascial pain can be local to the trigger point as well as produce a referred pain phenomena in the extremity that may mimic radicular symptoms of neurogenic origin. Travell and Simons have published extensive work and maps on trigger points and their pain reference zones.<sup>1</sup> Trigger points are generally hyperirritable areas within a taut muscle band. Trigger points are painful to palpation, and digital compression of an active trigger point can refer pain or numbness into its associated reference zone. When stimulated, a trigger point will produce a local twitch response in the muscle. Myofascial trigger points seem to affect sympathetic nervous tone and can cause autonomic symptoms as well.

It is felt that the thermographic finding of focal hyperthermia overlying the trigger point is not from head conduction but rather a vasodilatory somatocutaneous reflex response to nociceptive impulses. Infrared thermography equipment is well-suited to detect and measure the cutaneous thermal patterns of hyperthermia that the myofascial trigger point produces. Much work has been done by Fischer in the medical field utilizing IRT for diagnosis and management of trigger points.<sup>2</sup> Fischer has also correlated the use of pressure algometry with IRT and found a high correlation which was statistically significant.

In the chiropractic literature most work published has been in the form of case reports.<sup>4,5,6,7,8,9</sup> Infrared thermal imaging in general has been widely published in the world scientific literature. It has been found by many researchers to be a reliable, sensitive, specific test with high predictive value and interexaminer reliability.<sup>10,11,12,13</sup> It has been well-documented that right to left homologous parts are generally symmetrical within a few tenths of a degree.<sup>3,12,13</sup> Trigger points are ovoid appearing and generally are 1.0°C elevated compared to the opposite side or surrounding areas.

Myofascial trigger points can be involved in many disorders such as hyperextension/hyperflexion cervical injuries, disc injuries, TMJ, and overuse injuries.

Thermographic imaging will typically display a focal hot spot overlying the area of the trigger point. (Figure 1) The pain reference zone of the trigger point may often display a thermal finding of hyperthermia or hypothermia into the autonomic referral area. IRT will be extremely helpful in cases where the patient complains of chronic referred pain into the extremity and has been incorrectly diagnosed with radiculopathy. Thermal imaging will display a "myofascial pattern" as opposed to a typical neurogenic/radicular pattern seen in radiculopathy cases.

Trigger points of the piriformis or gluteus minimus can typically be misdiagnosed as sciatic radiculopathy. (Figure 2) IRT is also helpful in TMJ disorders since muscles like the masseter,

temporalis, and pterygoids will often be hyperirritable with taut bands and trigger points. IRT may be used not just as a diagnostic tool but as a treatment assessment tool as well.

## Conclusion

Infrared thermography is a useful diagnostic tool for the diagnosis and management of myofascial trigger points. Since myofascial pain syndromes are clearly a large part of any neuromusculoskeletal type practice, thermography is a useful tool for chiropractic practice.

## References

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