

# Telothermography: Clinical Application for Definitive Diagnosis of Soft Tissue Musculoskeletal Lesions/Indications and Protocol

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## Introduction

Considerable controversy has raged in recent years as to the reliability and sensitivity of thermography in general use as a diagnostic tool to determine musculoskeletal injuries. Most of the skepticism has arisen as a result of the "blind leading the blind" in the absence of stringent parameters characterizing the performance of this highly sensitive test, and the lack of scientific controls [1] that are necessary to reach meaningful test results.

The clinical frustrations following failed back surgeries, bracing techniques, and didactic forms of physical therapy treatments used in treating back pain, sciatica, and brachialgia, has led to the author to refine a diagnostic technique by the use of telothermography to more accurately define the soft tissue spinal inflammatory lesions following injuries and related neurovascular outflow to the extremities, and to guide further forms of surgical, injection therapy, prolotherapy, and other corrective forms of treatment that could then be applied in an attempt to lower the failure rate in this challenging field of treating the enigma of back pain.

In view of the controversy and opposition to the use of diagnostic thermography, arising from such reputable medical organizations as the American Medical Association, and the Academy of Orthopedic Surgery, the author has devised, in his 20 years of experience with 5000 private patients, a diagnostic method in which there is stringent adherence to selection and preparation of patients, the technique in performance of telothermography, to reach a meaningful diagnostic test result. The result is reliable when cross referenced to patient's clinical symptoms and signs of soft tissue spinal lesions, and neurovascular outflow to the extremities.

Deviations or breaches of the test protocol will present erroneous results. All the tests must be performed under controlled environment. The protocol has reached a 95% accuracy rate when cross referenced

to the clinical findings. The results of treatment when based on thermographic findings will secure the high level of quality control.

Patients mainly consisted of personal injury, worker's compensation cases and private patients; they were aged 18 to 65 years, and were distributed equally by sex.

The basis for specific soft tissue diagnosis by telothermography is dependent on the autonomic nervous systems' regulatory control of cutaneous circulation and thereby, the surface heat pattern created. Where autonomic sensory afferent fibers innervate every ligament, joint, capsule, muscle sheath, nerve sheath, and even vascular sheath, composing the soft tissue organs of spine and extremities, irritation of any specific organ will cause through a reflex arc system, the efferent autonomic motor fibers to alter the cutaneous circulation in a specific predetermined skin area, whose thermal regulatory distribution pattern is specific to that one single organ and follows a pattern of sclerotomal rather than a dermatomal temperature distribution.

Consistent patterns are reproducible on the skin surface corresponding to inflammation of a certain specific organ, even after the skin thermal pattern is "blown away" by cold and warm air application.

## Material and Methods

A component of the thermovision apparatus, the AGA oscilloscope, is used in a controlled ambient room temperature environment of 68-72°. The subject stands relaxed at room temperature, his arms and legs slightly spread apart to prevent skin contact. The subject, who stands free of clothing articles, is circumferentially sprayed from chin down to his toes, evenly, with an evaporated liquid such as ethanol. Thereafter, he stands between 2 powerful fans. Warm air is also blown circumferentially about the trunk and limbs by means of 2 powerful hair driers, until all vestige of alcohol, dampness, or goose bumps is gone, and the patient feels comfortable without sensation of shivering. Patient coopera-