

Regulation Thermography: Revealing Functional Signatures of Disease Progression and Development

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The first recorded use of thermo biological diagnoses can be found in the writings of Hippocrates around 480 B.C. Mud was spread over the patient and areas that would dry first were thought to indicate underlying organ pathology. Over time continued research and clinical observations proved that certain temperatures and temperature behaviors were indeed indicative of normal and abnormal physiological processes. In the U.S., the first diagnostic use of infrared imaging was in 1956 when Lawson discovered that the skin temperature over a cancer was higher than that of normal tissue. He showed the venous blood draining from the tumor site is often warmer than its arterial supply. In 1982 the FDA published its approval and classification of thermography as an adjunctive diagnostic screening procedure. Since then it has been cleared for several indications such as neoplastic disorders and inflammatory conditions, as well as thyroid dysfunction, neuromuscular disease and breast disorders.

Mammography and Thermography

Mammogram technology has undergone several improvements in recent years. More advanced digital high-definition technology has significantly decreased radiation exposure, however radiation remains a cumulative risk, and biophysics has clearly proven increased risk in dense breasts and breasts with calcifications.

According to several major studies, the benefit of mammography has been minimal in women under 50. Still, breast cancer incidence continues to increase in women between the ages of 30 to 50.

With the improvements made by recent software technology, Keyserlingk and his research colleagues at the University of Montreal increased the detection of breast cancer in 83 women from 66% detection with normal mammography to 95% when mammography was combined with thermography, and 83% when thermography was used as the sole screening method (Fig. 1).

Clearly thermography fills an important gap in the need for early detection in women ages 30-50 (where mammography has been shown to be of little or no benefit).

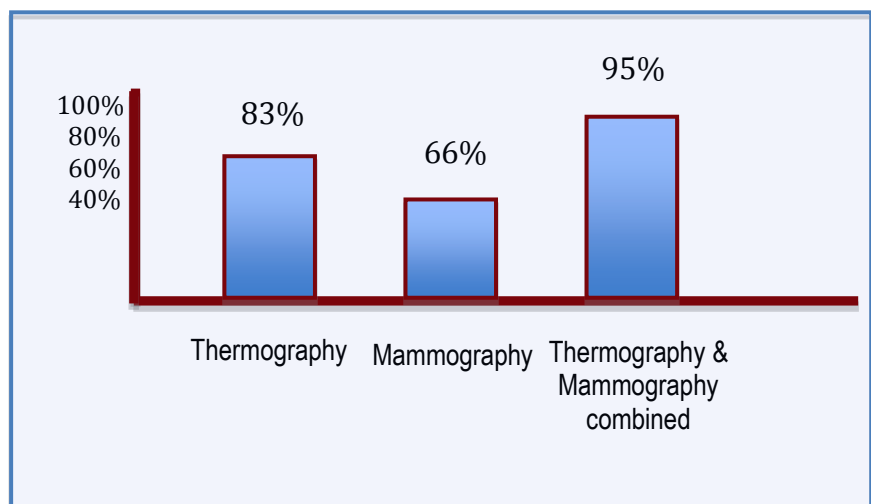


Figure 1: Regulation Thermography is best used as an adjunct to mammography, yielding a significantly higher accuracy and decreased false positives as often seen with mammography alone.

Functional Analysis through Dynamic Thermographic Assessment

Dynamic thermography was created according to the theories of Hans Selye, M.D. The ability or inability of the body to *adjust and recover* from a challenge-test or stress condition necessarily reflects aberrations in the health of tissues in regions anatomically related to neurological and circulatory activities. It is widely known in neurology that nerve groups controlling or carrying information from the organs also innervate the skin in precise viscerocutaneous zones. These zones have been well documented in neuroanatomical texts.

Jutta Rost, M.D., and Arno Rost D.D.S. (Germany, 1950's) developed a method for measuring skin temperature behavior from cool-air stress induction. Disease patterns were clinically documented and a system for classifying those patterns was developed. Over 50 disease "signatures" were identified, repeating themselves in thousands of patients over a 15-year period, and all corroborated with clinical findings (blood tests, x-ray, pathology).

After a series of computer-aided developments, Dr. Daniel Beilin, OMD, L.Ac. (U.S.), along with Dr. Petra Blum, M.D. (Germany) and other leaders in the field of thermoregulation, created an 'expert' signature-recognition infrared thermography device (2012). The infrared sensor system incorporates historical knowledge of infrared thermography and non-invasive assessment with modern mathematical algorithms to create a whole-body graphic-image and report.

Regulation Thermography: A Direct Method for the Assessment of Regulation in Functional Medicine

Regulation Thermography is not unlike the cardiologist's treadmill test. More information about health can be obtained from watching how the body behaves dynamically, than with static blood tests or X-Rays that often miss disorders in their developing stages.

Still, imaging *anatomy* by way of mammography or MRI cannot be substituted by stress physiological methods such as thermography. Even static thermography does not image the internal anatomy that is so necessary for adequate tissue and organ diagnostics.

Regulation medicine expands into another field of vision not unlike the way radio telescopes revolutionized our awareness of phenomena in the universe. Regulation Thermography represents a major step forward in the field of medical imaging. By assessing the functional capacity of the body's regulation system, it can provide physicians with increased diagnostic and pre-diagnostic capabilities. Regulation medicine is clearly the next step forward for medical diagnostics as we know it.

What is Health? Regulation and Homeostasis

Health is simply a state of balance. Whether one looks at endocrine feedback pathways, neurological inhibition and excitation, or inhalation and exhalation chemistry, one's level of health is a balance of opposites, biological terrain chemistry, toxic load effects, and genetic or epigenetic precursors. As a diagnostic tool Regulation Thermography is also a measure of balance. A cool-air stress is applied to an unknown system, and responses reflect the current multidimensional biology. The secret is in the physiological response that has been found to produce clear indicators for clinically-verified disorders. This has been proven over the last 30 years in over 1,500 clinics worldwide, and the data can now be used to create an accurate and reliable computer-assisted method.

The Biological 'Ideal'

After clinical evaluation of thousands of healthy individuals, a theoretical 'ideal' thermogram was created that serves as a 'backdrop' to the Regulation Thermography system. This ideal was partially constructed by taking dynamic measurements of Olympic athletes, as well as normal healthy adults, and then identifying dysfunctions in the behaviors of thermological points in sick patients.



Figure 2: Whole-Body Regulation Thermography System with Infrared Sensor

With *ideal regulation*, when a healthy patient is subjected to a cool-room exposure, most points on the body cool as the blood is functionally re-routed to the core and head, similar to a ‘fight or flight’ reaction. In Regulation Thermography, therefore, with a normal or ideal reaction we see the head values warm in their response as the body values cool. When this normal neurologically-controlled reaction is not seen, it can be assumed (and clarified by further medical tests) that there is an “input phenomena” that *originates from the regional organs and tissues* underlying those abnormal points. For instance, in an acute hepatitis case (and often in chronic hepatitis) the points over the liver (right upper abdomen) become warmer after a cool-air exposure in a paradoxical response. This can be helpful to the physician in that he can now place priorities in systems where he was previously blind.

Every doctor makes assumptions based on education and experience, which is always limited. Regulation Thermography provides visual insight into cases that have complex causes or incomplete diagnoses.

‘Regulation’ as a New Organ

An organ is a structural part of a body system that is composed of tissues that enable it to perform a particular function. As we increase our understanding of disease development however, we should accept that there are integral and multiple systems in the body that co-create mechanisms for directing terrain chemistry and affecting known organ function.

According to Dr. Beilin, “the new organ we can call ‘Regulation’ is a functional, unified, and harmonized force when healthy, and a dysfunctional, disunified force in disease.” The integrity of this ‘new organ’ can be measured with Infrared Regulation Thermography. As we observe stages and regions of chaotic or blocked regulation that highly correlate to development of disorders (e.g. breast cancer location predisposition can be seen up to 5 years before a tumor actually forms); we can then regard the system of ‘Regulation’ as one organ system. Regulation facilitates a template for future disease prediction as well as prognostic categorization. Suddenly we have an ‘outlook’ on both the patient’s future and current biological stability.

A lumpectomized breast with poor localized regulation means there may be a high future possibility for recurrence. Regulation Thermography produces reflections of the lymph and endocrine status, both key systems affecting breast health. We can then treat these systems that have immediate input into the region to help insure better prognoses. Since the Regulation system serves such an important and accurate diagnostic function, it by logic and necessity must be regarded as a new organ in human and animal biological systems.

Regulation Thermometric Analysis: Suspicion of Breast Cancer

A 62 year-old woman with left breast and axillary tenderness is seen in the clinic after being diagnosed with heavy metal toxicity (principally lead). She has recently developed sensitivity to mold as well as having a moderate dysbiosis and mild chronic diarrhea. She is reluctant to have a mammogram and wants a substitute, however was told there is no substitute other than an MRI. Her laboratory tests (CBC, chem panel, thyroid, etc.) are normal and she has not been assessed for hormones or infection. Initial evaluation at this clinic began with Regulation Thermography, as it allows for a working ‘fingerprint’ of a ‘bird’s eye view’ of the body system physiology that can be used as an ongoing reference. It is very common for any patient with a single diagnosis (say diabetes or heart disease) to reflect multiple system cause (liver disorders along with diabetes or kidney dysfunction with heart disease) through the signature-recognition software of Regulation Thermography.

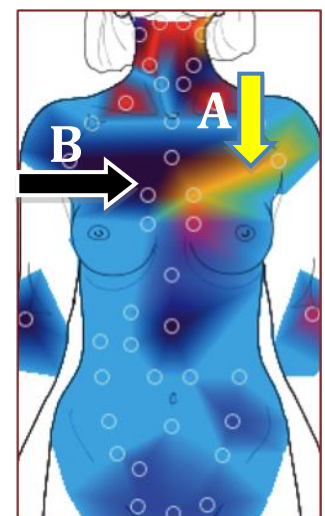


Figure 3: Functional Body Mapping

Computerized analysis creates a vital, dynamic image of point behavior otherwise invisible to static, infrared-camera methods. Here, in the left chest (A) the paradox region (yellow) extends from the axilla to the mid-chest. You also see the sternum is dark purple or black (B), indicating the temperature was blocked from any influence of the stress-response. These point behaviors begin to build the case for suspicion and indicate increased severity of dysfunction. She was referred to MRI and is doing well 2 years post lumpectomy.

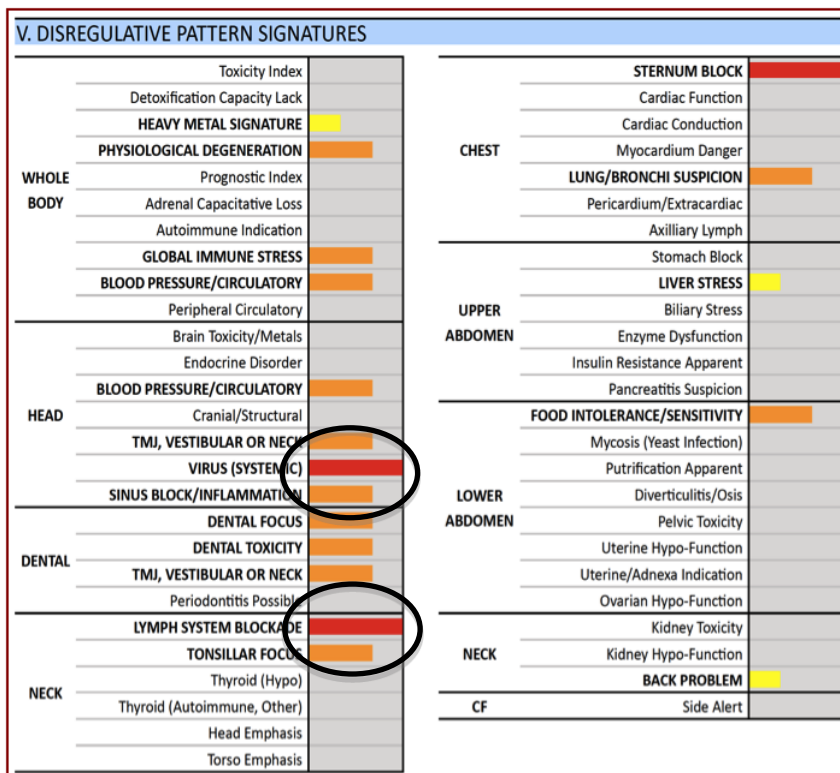
Our job as integrative practitioners is to support the healthy systems as we address biological terrain issues, helping to insure the best long-term outcome for patients. The evidence of other factors identified, corroboration with other clinical tests, and subsequent treatments have resulted in lifestyle improvements and better outcome in patients under the care of Regulation Thermography-equipped clinics.

Signature Recognition Based Upon 30 Years of Empirical Data

With advances in reporting, regulation data is converted and subjected to numerous algorithmic formulas to yield a clear prioritization of system stress according to degree of positive identification.

A clear reflection of regulation physiology and its disturbances is created in a simple table for immediate assessment and decision making. In this example, a chronic fatigue/lyme patient reflected a lymph and viral inflammatory indication. The report can assist the physician by approaching these systems as crucial parallels in his treatment of the diagnosed patient. It is not uncommon for the physician to change his diagnosis due to the expanded vision Regulation Thermography provides, and then confirm the new diagnosis accordingly with appropriate laboratory tests or imaging methods.

In the patient report, systemic functional stress is prioritized and recommendations are made for both normal laboratory and imaging validation for diagnostic determination. The report also incorporates integrative medicine concepts such as orthomolecular, herbal or other alternative treatment plans.



| # | PRIORITIES | RECOMMENDATIONS |
|-----|---------------------------------|--|
| I | LYMPH SYSTEM BLOCKADE | Palpation of lymph (neck, chest, axillae, inguinal) with cbc and possible throat culture, viral panel. Supplement with lymph meds such as Astragalus, thymus, phytolacca, etc. Also recommend to probiotic therapy. |
| II | VIRUS (SYSTEMIC) | Consider viral panel. Treat with supplementation such as L-Lysine, gentian and other antivirals, as well as consider bacterial co-infections and use supplements for general immune support. |
| III | DENTAL FOCUS | Investigate for occult infection; X-Ray, root canal assessment; Additionally panoramic x-Ray, assessment of dental metals, interactivity, correlation to stressed organs, galvanism. |
| IV | FOOD INTOLERANCE OR SENSITIVITY | Refer to test for celiac and other food sensitivities; Consider L-glutamine, probiotics, elimination diet. |
| V | PHYSIOLOGICAL DEGENERATION | There are elements consistent with degenerative and tendencies toward future neoplastic conditions. Consider appropriate imaging, laboratory and physical examination as well as familial pattern analysis. Investigate terrain chemistry, alkalization of tissues, enzyme enrichment as well as addressing lymph and endocrine contributions. |
| VI | GLOBAL IMMUNE STRESS | Consider CBC w diff, Immunology panel, lymph palpation/exam. In addition, apply immune-stimulation such as herbal immune supplementation, thymus extracts, lymph meds as well as probiotics. |

Figure 4: Signature Recognition with Priority-Led Recommendations

Conclusion

Regulation medicine is a new vista. In Europe, specifically Germany, Switzerland and Austria, Regulation Thermography is not only used as a primary screening method for over 40 disease patterns, it is also used to monitor treatment efficacy by successive scanning. Since it is non-invasive and can be performed as often as necessary without consequence, its universal application is clear.

Regulation Thermography is an instrumental tool for:

- Developing a new understanding of the creation of disorders
- Identifying how parallel organ systems and tissues contribute to disease
- Verifying treatment choices

It is bound to play a major role in increasing accuracy of disease prognosis and understanding the true causes of disease.

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