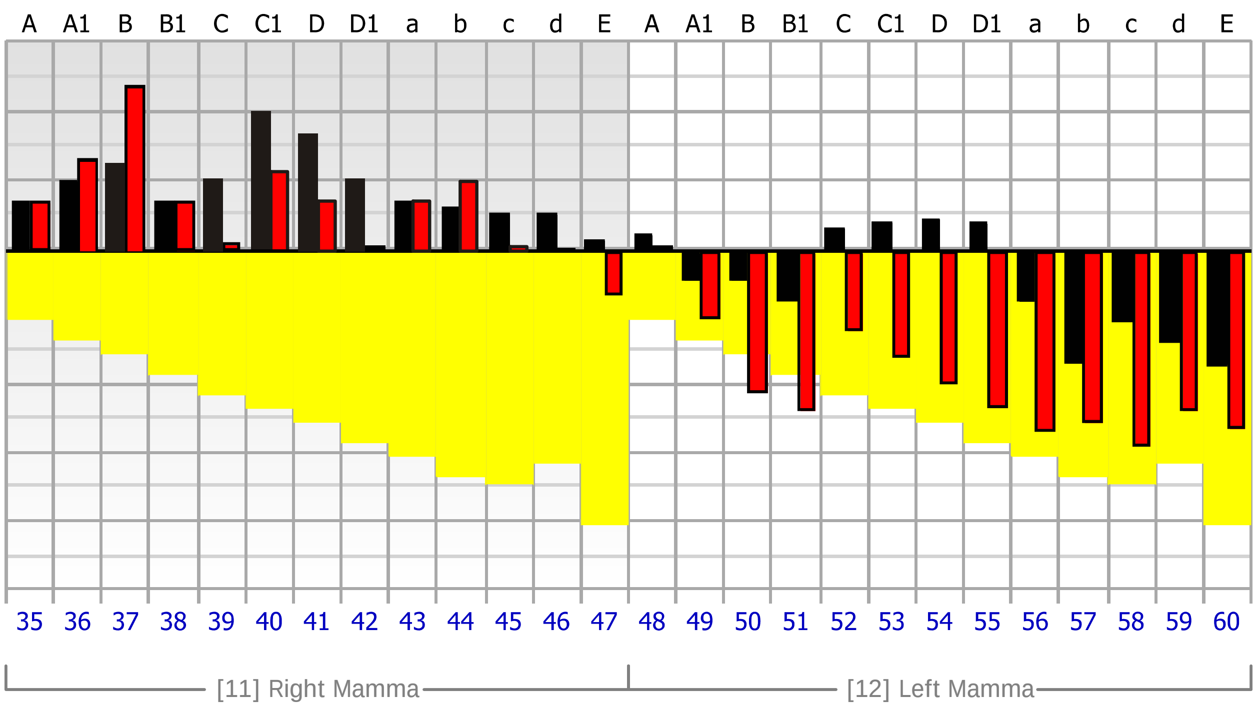
INTRODUCTION TO CONTACT REGULATION THERMOGRAPHY



Dr. James Odell, OMD, L.Ac.

Thermoregulation is the control of body temperature. Body temperature is kept constant in a very small range despite large differences in temperature of one's environment and level of physical activity. Strict regulation of body temperature is necessary for optimal biochemical process of hundreds of enzymatic reactions.

Contact Regulation Thermography (CRT) is a thermodynamic diagnostic method that utilizes the physiologic behavior of the body's skin temperature when exposed to a cold stimulus in order to determine the functionality and health status of certain organs, glands and tissues. It involves taking a temperature measurement of specific areas on the surface of the body twice, once as a baseline and again after exposure to a 10 minute cold challenge.

"*The CRT gives a different picture of characteristics of disease development. With CRT we are facilitated with information about early cellular and metabolic dysfunction which serves to create disturbances most likely leading to disease. With CRT we can see what the body is doing before it becomes dysfunctional enough to create an irreversible problem*" – Petra Blum, MD, President of the International Medical Academy of Thermography (IMAT) Germany.

Research and Investigations of CRT

Numerous individuals from different geographical regions that include Denmark, France, Germany, Italy, Japan, United Kingdom and the United States have investigated the efficacy of contact thermography, and more recently liquid crystal contact thermography in detecting diseases such as cancer. Studies investigating breast abnormalities have shown that contact thermography was effective as a diagnostic tool with high sensitivity for detecting breast abnormalities. Breast abnormalities in breast cancer patients were associated with increases in local regional hyperthermia as related to the tumor as well as a useful adjuvant tool for diagnosing suspected breast neoplasms.

The CRT 2000® Thermographic system developed by EIDAM Diagnostic Corporation has the following indications for use as an adjunctive diagnostic device under its US FDA 510(k):

- Abnormalities of the female breast
- Peripheral vascular disease
- Musculoskeletal disorders
- Extracranial cerebral and facial vascular disease
- Abnormalities of the thyroid gland
- Various neoplastic and inflammatory conditions

In an Italian study of contact thermography and breast development it was reported that CRT was useful in evaluating pubertal breast development and in differentiating between premature thelarche and true precocious puberty. (*Frejaville E, Pagni G, Cacciari E)* Also in Italy in a study sample consisting of 12,000 patients it was shown that CRT proved reliable in those patients aged under 30 in detecting benign pathologies or palpable nodules of the breast. *(Sforza M, Ballerini A, Russo R, Carzaniga PL, Vertemati G.)*

Geshelin and colleagues have reported that CRT is extremely useful as a supplementary diagnostic modality that can significantly distinguish between cancer of the breast and benign tumors. *(Geshelin SA, Noskin AL, Kravchenko VA.)* Gautherie and Gros who have evaluated a cohort sample of 58,000 women in the USA over 12 years have reported that contact thermography made a significant contribution to the evaluation of patients suspected of having breast cancer. *(Gautherie M, Gros CM.)*

In a study from Japan with various cancer patients it was observed and reported that patients with abnormal contact thermography profiles had cancer recurrences at more than one site. *(Ikeda T, Abe O, Enomoto K, Kikuchi K, Fujiwara K.)*

Contact thermography has also been extensively used in numerous other patient types and conditions that include deep vein thrombosis *(Kohler A, Hoffmann R, Platz A, Bino M),* surgical patients that have examined wound healing *(Horzic M, Bunoza D, Maric K),* skin damage due to chemical irritants *(Agner T, Serup J.),* diabetics with foot ulcers *(Benbow SJ, Chan AW, Bowsher DR, Williams G, Macfarlane IA.),* orthopaedic patients and those with temporomandibular dysfunction *(Specchiulli F, Mastrosimone N, Laforgia R, Solarino GB),* pregnant women with respiratory infections *(Fisher Iula, Oborotistova AN, Brio GB),* children with migraine *(Wolstein JR, Reed MH, Seshia SS, Kubrakovich P, Linsey B, Samuel A),* facial pain and fifth cranial nerve neuralgia *(Hardy PA, Bowsher DR.),* as well as lung cancer patients *(Loviagin EV, Mus VF, Litvinov PD, Iakovleva LA.).*

Contact Regulation Thermography and Breast Disease Detection

Current first-line breast cancer detection strategy still depends essentially on clinical examination and mammography. The limitations of the former, with its reported sensitivity rate often below 65% (Sickles, E.A) is well-recognized, and even the proposed value of self-breast examination has its limitations *(Thomas, D.B., Gao, D.L., Self, S.G.).*

Investigating the cumulative risk of a false-positive result in mammographic screening, Elmore and associates performed a 10-year retrospective study of 2400 women, 40 to 69 years of age. A total of 9762 mammograms were investigated. It was found that a woman had an estimated 49.1% cumulative risk of having a false-positive result after 10 mammograms. Even though no breast cancer was present, over one-third of the women screened were required to have additional evaluations *(Elmore, J.).*

With the current emphasis on earlier breast cancer detection, there is now renewed interest in the parallel development of complementary diagnostic techniques that can also exploit the precocious metabolic, immunological, and vascular changes associated with early tumor growth. While promising, techniques such as scintimammography *(Khalkhali, I., Cutrone, J.A.)*, doppler ultrasound *(Kedar, R.P., Cosgrove, D.O.),* and MRI *(Weinreb, J.C. and Newstead, G.)* are associated with a number of disadvantages that include exam duration, limited accessibility and increased expense, need for intravenous access, patient discomfort, restricted imaging area, difficult interpretation, and limited availability of the technology *(Moskowitz, M.).*

In a breast cancer study conducted amongst 70 women by Professor Wagner, Doctor of Oncology, Stuttgart, Germany, there were 63 total confirmed cases of breast cancer. Of those 63 women, 34 received a clinical exam by a doctor, 48 received a clinical exam and a mammogram, and 61 women received a clinical exam, mammogram, and a computerized regulation thermography (CRT) scan. Having a clinical exam alone shows a 54% diagnostic accuracy rate. With addition of a mammogram, the rate increases at 76%. CRT further improves this diagnostic accuracy rate by 20% at a rate of 96%.

Research has shown that small tumors frequently exhibit greater heat increases than many of the larger ones. Long-term follow-up suggests that thermograms may provide the first indication of the presence of a malignant tumor *(Clark RM)*. However, many benign conditions of the breast as well as carcinoma produce abnormal findings on a thermogram. Hormonal imbalances that place women at greater risk for developing cancer also have characteristic thermal signs. Fibrocystic changes typically show increased vascularization in a more uniform fashion, allowing for effective differentiation between fibro cystic breast disease and tumors.

To date, a biopsy with a pathology report is the only procedure able to diagnose breast cancer. In the author's opinion, the most optimum current multimodal approach for breast screening calls for clinical examination and contact regulation thermography followed by an ultrasound or MRI. The ability of CRT to detect precancerous physiological changes up to 8-10 years before mammogram detection makes contact regulation thermography – with its non-radiation, noninvasive nature and low cost – a useful tool for early screening and prevention.

Thermography is especially useful for women who are on hormone replacement, nursing, have had a lumpectomy or mastectomy, or have fibrocystic, large, dense or enhanced breasts.

History

The association between temperature and disease is almost as old as medicine itself. The first recorded use of thermobiological diagnostics can be found in the writings of Hippocrates around 480 B.C. He described that a mud slurry spread over the patient was observed for areas that would dry first and was thought to indicate underlying organ pathology. After Galileo introduced the thermoscope, thermometry evolved slowly and became firmly established in medicine. John Herschel made the first thermal image in the early 1800's, which he called a thermogram, using carbon particles and alcohol in a process known as evaporography. Carl Wunderlich in the 19th Century published temperature recordings from over 1 million readings in over 25,000 patients made with a foot-long thermometer used in the axilla. He established a range of normal temperature from 36.3 to 37.5 °C. Temperatures outside this range suggested disease. Since that time, continued research and clinical observations proved that certain temperatures related to the human body were indeed indicative of normal and abnormal physiologic processes. The first electronic thermal sensors were developed in the 1940's. In the 50's, military research into infrared monitoring systems for night time troop movements ushered in a new era in thermal diagnostics. The first use of diagnostic imaging thermography came in 1957 when R. Lawson discovered that the skin temperature over a cancer in the breast was higher than that of normal tissue.

While infrared image thermography was developing in the 50s, other scientists in Germany were interested in contact thermography as well as the physiological thermal regulation patterns that develop during illness. Beginning in 1953, Dr. Ernst Schwamm developed thermal functional diagnosis, a contact thermography, which he later called thermal regulation diagnosis. In 1954, Dr. Schwamm founded the German Society of Thermography and Regulation. At that time, Dr. Arno Rost, a German physician and researcher, was elected President of this society. Dr. Rost devoted his life to research in regulation thermography and in collaboration with his wife, Dr. Jutta Rost, MD, published several texts on contact regulation thermography. In 1975, Dr. Rost partnered with Werner Eidam (Werner Eidam Medizintechnologie GmbH) to further develop contact regulation thermography measurement equipment.

In 1980, Werner Eidam and Dr. Rost developed the Eidatherm, a predecessor to the current CRT 2000® Thermographic System. Dr. Rost died in March 2005 at the age of 86. The Board of the German Society of Regulation Thermography then elected Prof. Dr. Reinhold Berz as its president. In 2003, Werner Eidam's company compiled 22 years of research data, including thermographic data, case files, and patient pathologies. This data was used in the development of the CRT 2000® machine. In 2005, Eidam Diagnostics Corporation was founded and purchased the intellectual property rights from Werner Eidam's company. In 2006, Eidam Diagnostics re-engineered the Contact Regulation Thermographic-2000 system into its present day model.

Aside from contact thermography, modern infrared imaging systems offer high resolution images of human body temperature, measuring the infrared heat of tissue metabolism. An infrared scanning camera translates infrared radiation emitted from the skin surface and records them on a color monitor. This visual image graphically maps the body temperature and is referred to as an infrared thermogram. The spectrum of colors indicates an increase or decrease in the amount of infrared radiation being emitted from the body surface. In healthy people, there is a symmetrical skin pattern which is consistent and reproducible for any individual.

Comparison of CRT and Infrared Thermal Imaging

Contact regulation thermography and infrared thermal imaging are vastly different diagnostic approaches, though each is based on thermodynamics. CRT is an exact temperature measurement taken with a probe in contact with the skin. The CRT output is a computerized graph rather than an infra-red image. CRT involves a cold stimulus challenge with contact skin temperature measurements taken before and after the thermal stimulus. Because CRT involves a cold stimulus challenge it measures the regulatory capacity of certain organs, glands and tissues. Thermal imaging displays the amount of infrared energy emitted, transmitted, and reflected by the body. Because of this, it is quite difficult to get an accurate temperature using this method. It shows a visual picture so temperatures over a large area can be compared. Thermal imaging is a static image of infrared radiation, and as such, is not a functional diagnostic that assesses the regulatory capacity of the body.

CRT and thermal imaging are both non-invasive diagnostics. Both can identify abnormal temperature asymmetry.

Current Conventional Medicine Politics Concerning Thermography

It is unfortunate, but many physicians still hesitate to consider thermography (CRT or infrared imaging) as useful tools in clinical practice in spite of the considerable research database, continued improvements in both contact thermographic technology and image analysis, and continued efforts on the part of the thermographic societies. This attitude may be due to the fact that the physical and biological bases of thermography are not familiar to most physicians. Regulation physiology and functional diagnostics is still in its infancy in comparison to structural diagnostic measurements and imaging (x-ray, MRI). Other methods of investigations refer directly to topics of medical teaching. For instance, radiography and ultrasonography refer to anatomy. Thermography, however, is based on thermodynamics and thermokinetics, which is of central interest to the world of physics but unfamiliar to most physicians. In many areas conventional medicine has not caught up with quantum physics. Hence, in the United States CRT as a functional diagnostic method is still not generally well known or understood among clinicians, even though it is an FDA registered diagnostic tool.

The Contact Regulation Thermography Procedure

The CRT process is based on a double measurement of the skin temperature at 119 locations (specific points) on the surface of the body. The patient first sits fully clothed in a slight cool room 20°C. to 23° C. for 10 to 15 minutes while the body temperature acclimates. The technician begins the measurements by gently touching a temperature probe on specific points on the face and neck. The patient is then asked to remove their clothes from the waist up, so that the remainder of the measurements on the arms, chest, upper and lower abdomen, back and breast can be taken. After that, the patient is asked to disrobe from the waist down and stands unclothed in their underwear, with arms by their side, exposed to the cool room air for 10 minutes. The exposure provides a challenge to the body's temperature regulation processes. While still undressed, the same points are measured again to conclude the test.

The new generation CRT 2000® device analyzes the input data and provides both a graphic representation of the thermal measurements and an interpretation based on the combined data. The computer program also analyzes and prints out a variety of interpretive indices.

Contact regulation thermography does not entail the use of ionizing radiation, venous access, radioactive dyes, or any other invasive procedures. It is safe and simple. The examination process of touching a temperature probe to the body poses no harm or discomfort to the patient.

Principles of Regulation Thermography

The interpretation principles involve both the absolute temperature values and the differences between the measurements before and after the 10 minute cold stimulus. The ongoing collaboration of The International Medical Academy for Thermography Scientific Board of clinical experts, together with EIDAM Diagnostics Corporation has resulted in the recognition of many different pathological patterns in the CRT 2000® printout.

CRT is based on the physiological condition that diseases of the human body (or their prephases) entail characteristic changes in the body's ability to adapt or respectively react to the current ambient temperature. A comparison of the body's actual thermoregulation capacity with an expected or ideal healthy regulation pattern provides information relevant for the diagnosis of certain diseases.

The observed temperature patterns before and after a 10 minute cool challenge are classified according to their regulation types (normal, hyporegulation, hyperregulation, rigid regulation and paradoxical regulation) and used to assess functional pathology and gain diagnostic information.

Physiological response classified into four basic categories (actually five – the fifth being paradoxical):

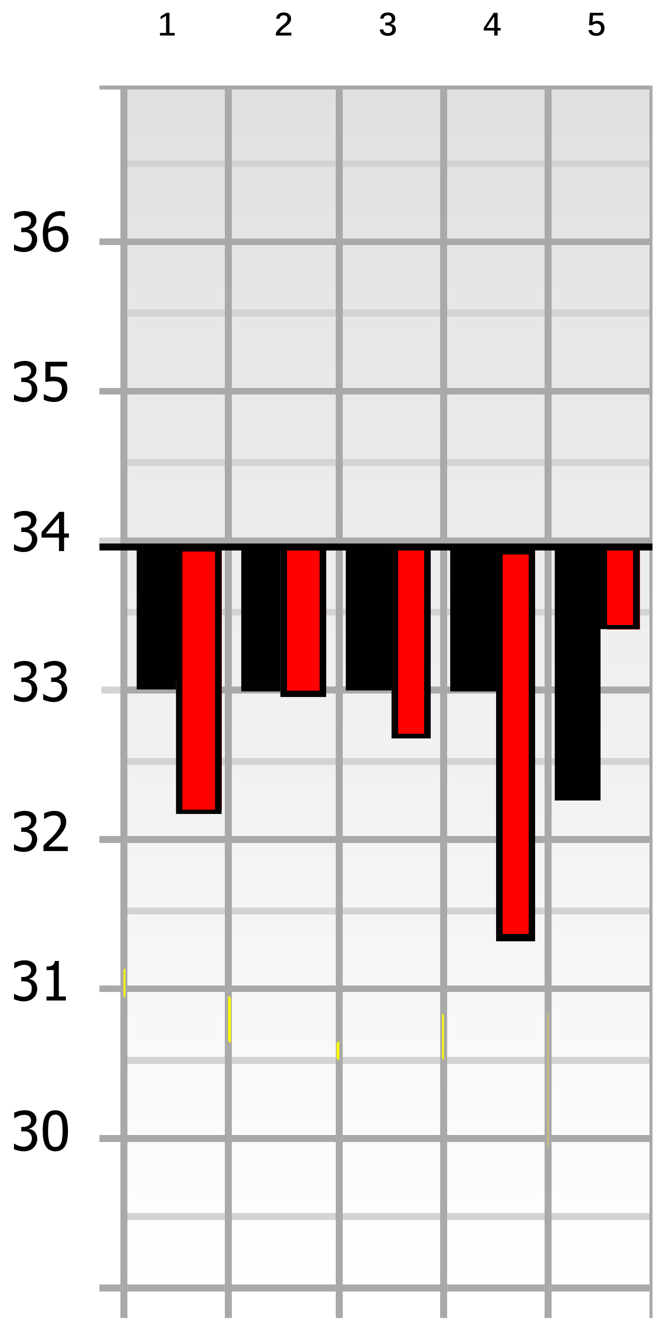
- Normal Regulation 0.5 – 1.0°C
- Rigid Regulation 0.0 – 0.2°C
- Hypo Regulation 0.2 – 0.5°C
- Hyper Regulation over 1.0°C

These temperatures are guidelines only, as the actual expected response varies from point to point. A set of exacting interpretation principles has been established over several decades.

The basis for evaluating a thermogram begins with understanding the different types of physiological reactions to cooling stimulus and the root causes for these reactions.

The body should cool down from a cold stimulus challenge, whereas the head shunts blood and warms up from a cold challenge. Hence, a paradoxical response in the body would be a warming in the second measurement, whereas a paradoxical response in the head points would be a cooling in the second measurement value. The ideal regulation thermogram pattern from a cold challenge involves a radial temperature drop (from lateral to medial), and a vertical temperature drop(from cranial to caudal).

The following diagram represents five potential regulation reactions. The first depicts normal regulation with a cool down of approximately 0.7°C.; the second depicts rigid regulation, where there is no change from the first to second measurement; the third represents a hyporegulation response of approximately 0.3°C; the forth example represents hyperregulation with a cool down of 1.7°C; the fifth example depicts a paradoxical response with the second measurement going in the opposite direction of what is expected – warming up 1.3°C. Paradox reactions usually indicate disturbed areas, disease processes, inflammation, or a cancer terrain.



1. Normal Regulation
2. Rigid Regulation
3. Hyporegulation
4. Hyperregulation
5. Paradoxical Regulation

The characteristic pattern of hyporegulation is an inadequate response to the cold stimulus. This entails that the corresponding organ, gland or tissue has lost some degree of functional capacity. Generally, in the case of hyporegulation one or more provocation, or stimulus therapies, should be applied in order to enhance the organism's stimulus response reaction. Examples would be aerobic exercise, sauna therapy, physical therapy, and remedies or herbs that tonify and strengthen immune and organ function.

A hyperregulation response is the opposite of hypo. It is an over-reactive response to the cold thermal stimulus. This entails an allergic-toxic condition of the corresponding organ, gland or tissue. Here the organ may be responding to a toxic environment. Therapeutic approaches are generally designed to *gently* detoxify (assist organs of detoxification) and change the allergic, toxic terrain. Therapies that invoke a provocation stimulus should be avoided in order to reduce the over-stimulus, response reaction. Therapeutic examples are enzyme therapy to improve cellular metabolism and digestion, relaxation exercises to calm the mind and nervous system, probiotic and isopathic remedies to balance the ecological terrain, and approaches for the improvement of hydration and electrolytic balance.

A rigid response is no response or change to the cold thermal stimulus. This entails that the organ, gland or tissue is blocked in the ability to regulate or adapt. Like hyporegulation the organism has lost functional capacity and needs a stimulus to become functional. In CRT a rigid response is a therapeutic priority.

Another important abnormal pattern seen in CRT is thermographic chaos. Chaos is defined as a pattern that contains abnormally hot and cold measurement values side-by-side to each other. Normally, temperature values measure about the same in proximity to each other. Chaos is an important pathological pattern and when seen helps the clinician to identify that chaos area as a therapeutic priority. Generally, all types of therapy forms can be used in the case of chaotic regulation, as long as there is not primarily hypo or hyperregulation in the region that needs to be addressed. When this is the case, the same thermal therapy principles applying to hyper and hyporegulation should be observed.

Physiologically, it is expected that the temperatures of the body measured with CRT 2000® will be symmetrical – that is, the left and right sides should be approximately identical in temperature and regulation response.

The healthy body continuously regulates the heat production and loss with the aim being to maintain a specific temperature pattern. This pattern is determined by organ, gland and tissue function, anatomy and body thermodynamics. The liver produces a lot of heat, which is transported around the body by the blood.

Normal body temperature in humans is 37°C. Stability and circadian variation in core body temperature are homeostatic responses that have been well documented for many decades. The temperature of the body's core, as well as that of the head, must be kept constant as to ensure the unrestricted functioning of the inner organs and the brain. Arms and legs and legs exhibit a variation of temperature. The axial symmetry of temperature distribution has simple anatomic reasons, while the radial decrease of temperature values represents the flow of energy from their source through the body's surface into the ambient space.

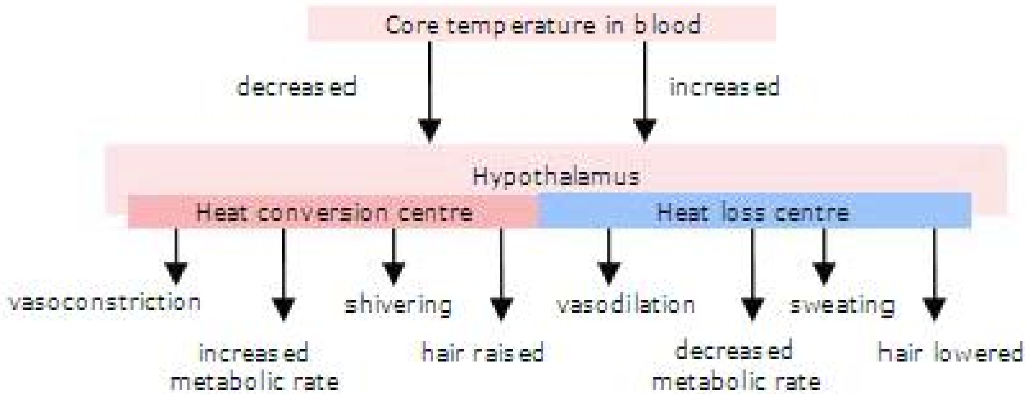
Previously, average oral temperature for healthy adults had been considered 37.0 °C (98.6 °F), while normal ranges are 36.1 °C (97.0 °F) to 37.8 °C (100.0 °F). In Poland and Russia, the temperature had been measured axillary. 36.6 °C was considered "ideal" temperature in these countries, while normal ranges are 36 °C to 36.9 °C. Recent studies suggest that the average temperature for healthy adults is 98.2 °F or 36.8 °C (same result in three different studies).
Variations (one standard deviation) from three other studies are:

- 36.4 - 37.1 °C (97.5 - 98.8 °F)
- 36.3 - 37.1 °C (97.3 - 98.8 °F) for males, 36.5 - 37.3 °C (97.7 - 99.1 °F) for females
- 36.6 - 37.3 °C (97.9 - 99.1 °F)

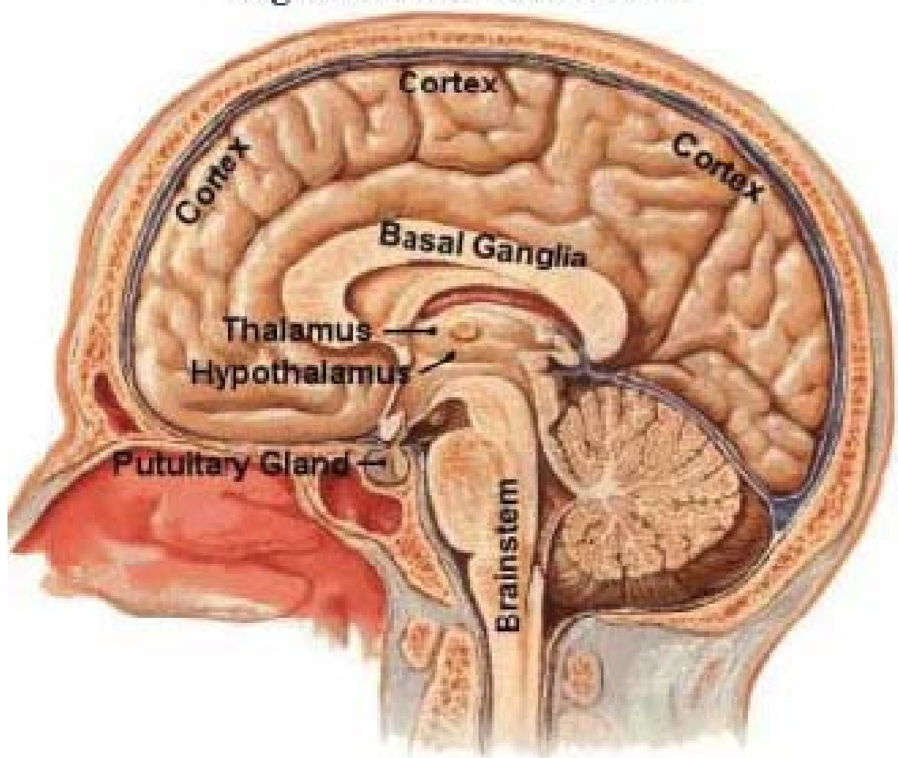
The regulation of the heat distribution inside the body is performed by a multitude of organ, glandular and neurological components in response to the environment. Most body heat is generated in the deep organs, especially the liver, brain, and heart, and in contraction of skeletal muscles. Humans have been able to adapt to a great diversity of climates, including hot humid and hot arid. High temperatures pose serious stresses for the human body, placing it in great danger of injury or even death.

Homeothermic refers to the use of internal physiological mechanisms to maintain an almost constant body temperature. This is characteristic of mammals and birds, and this process requires enormous energy reserve and numerous regulatory controls. Some of the more obvious controls are sweating to decrease temperature, and shivering to increasing temperature through increasing metabolic rate, and decreasing blood flow to the skin.

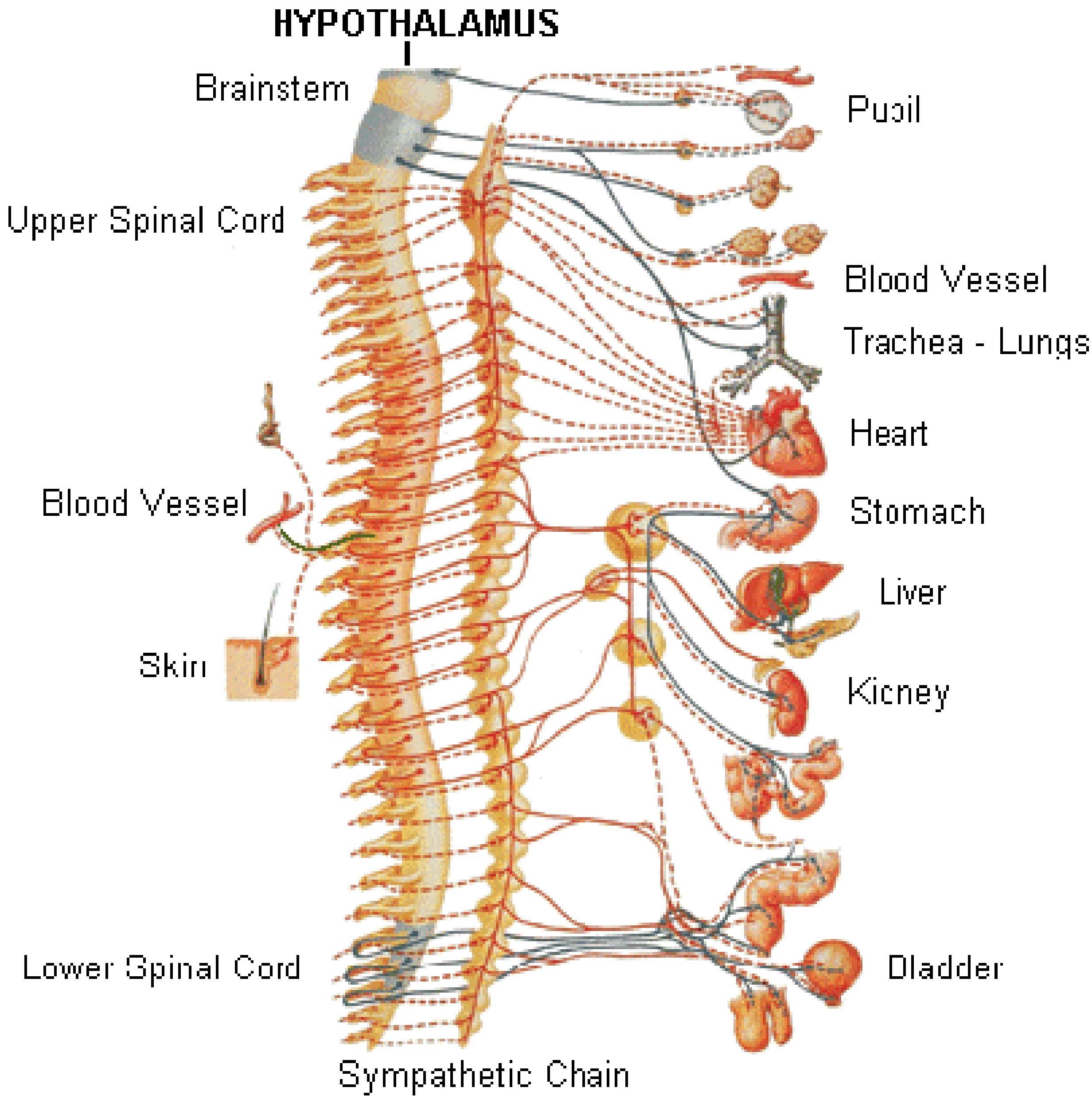
For humans, adaptation to varying climatic conditions includes both physiological mechanisms as a byproduct of evolution, and the conscious development of cultural adaptations. The center of this control system is constituted by the hypothalamus, located below the thalamus, just above the brain stem. The hypothalamus receives input from two sets of thermoreceptors. The first is located in the hypothalamus itself as it monitors the temperature of the blood passing through the brain (the core temperature). The second are the receptors in the skin (especially on the trunk) which monitor the external temperature. Both sets of information are needed so that the body can make appropriate adjustments. The hypothalamus then sends impulses to the autonomic nervous system to adjust body temperature. Depending on environmental and physiological conditions the hypothalamus can activate or deactivate the metabolic activity. Some of these mechanisms are to a certain extent self-sufficient; some others can directly interact with each other.



Sagittal Section - Medial View

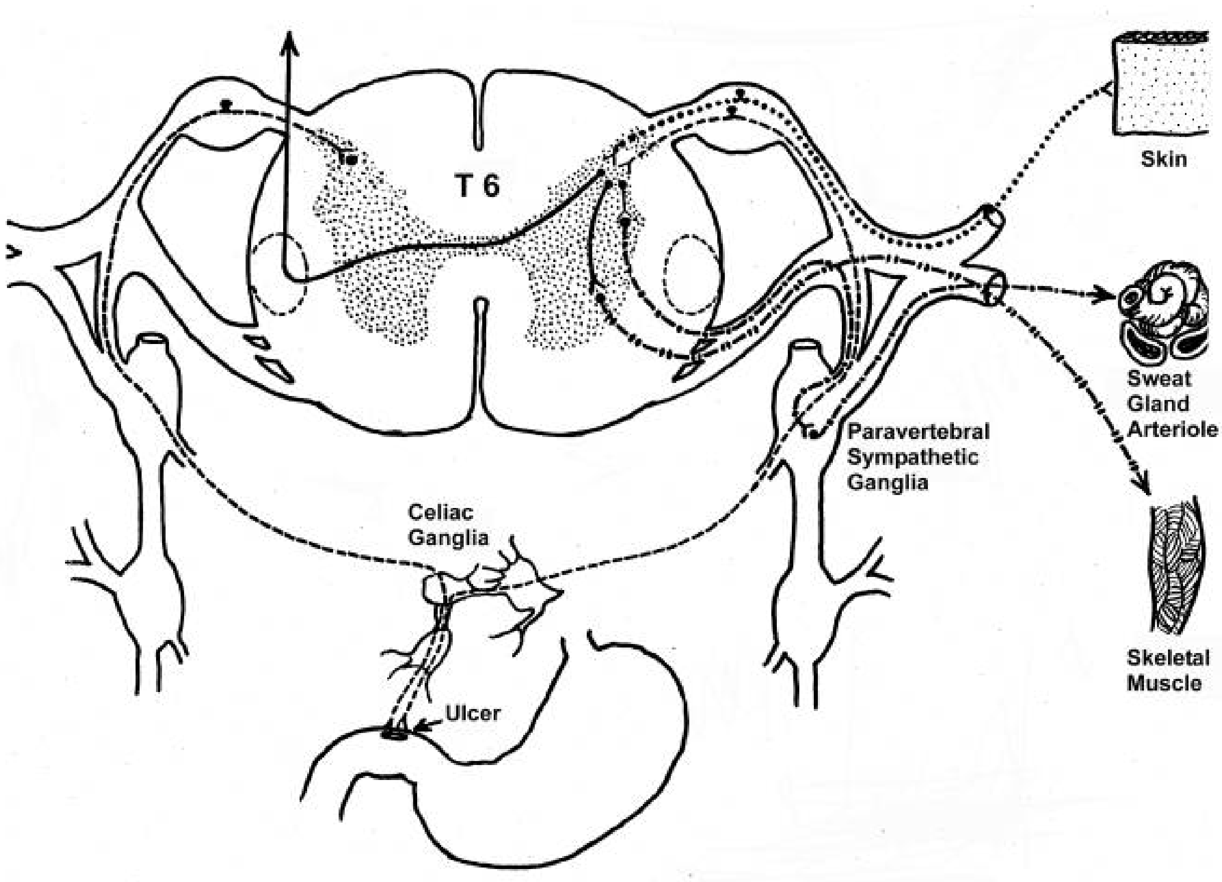


Autonomic Nervous System

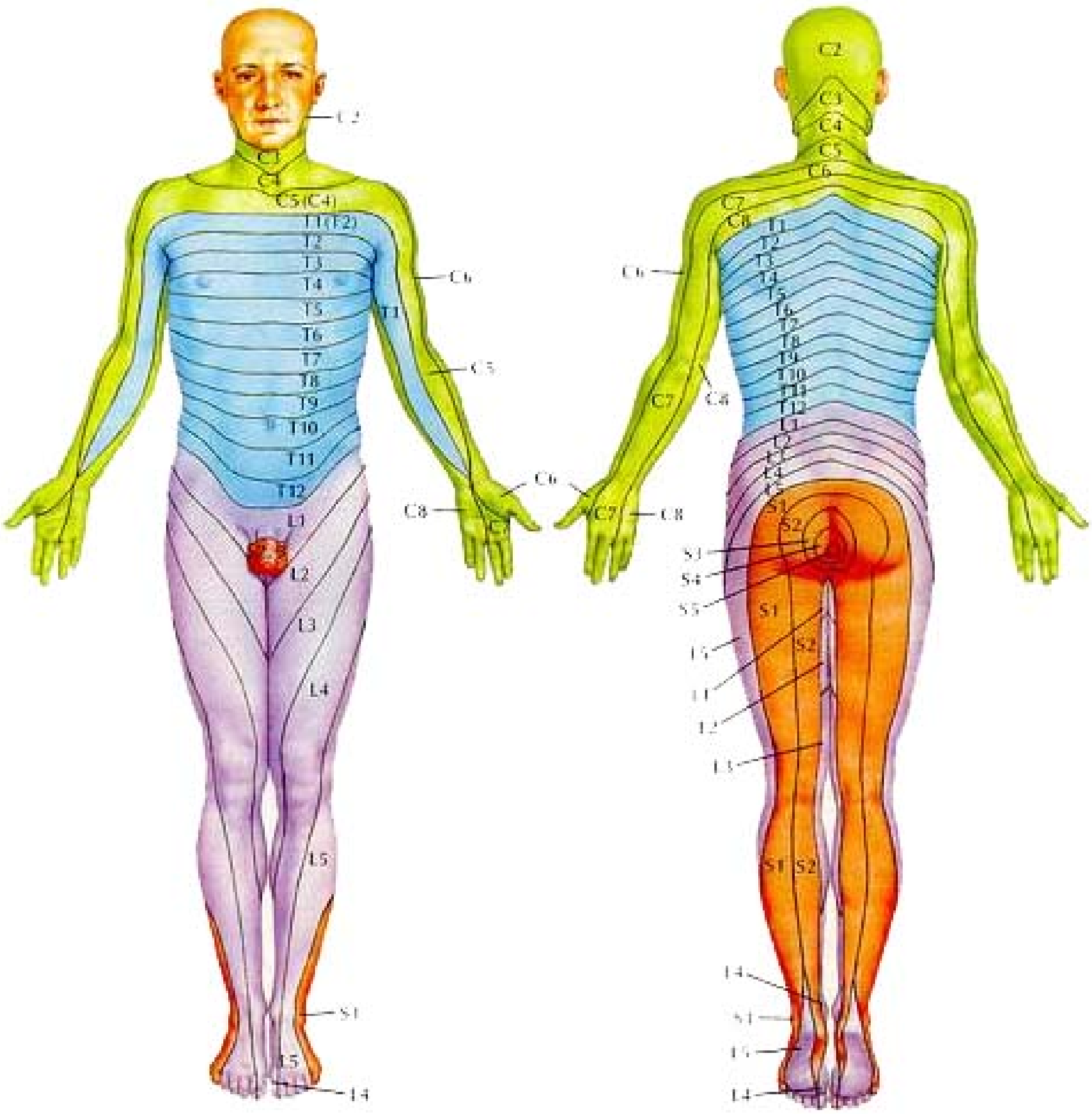


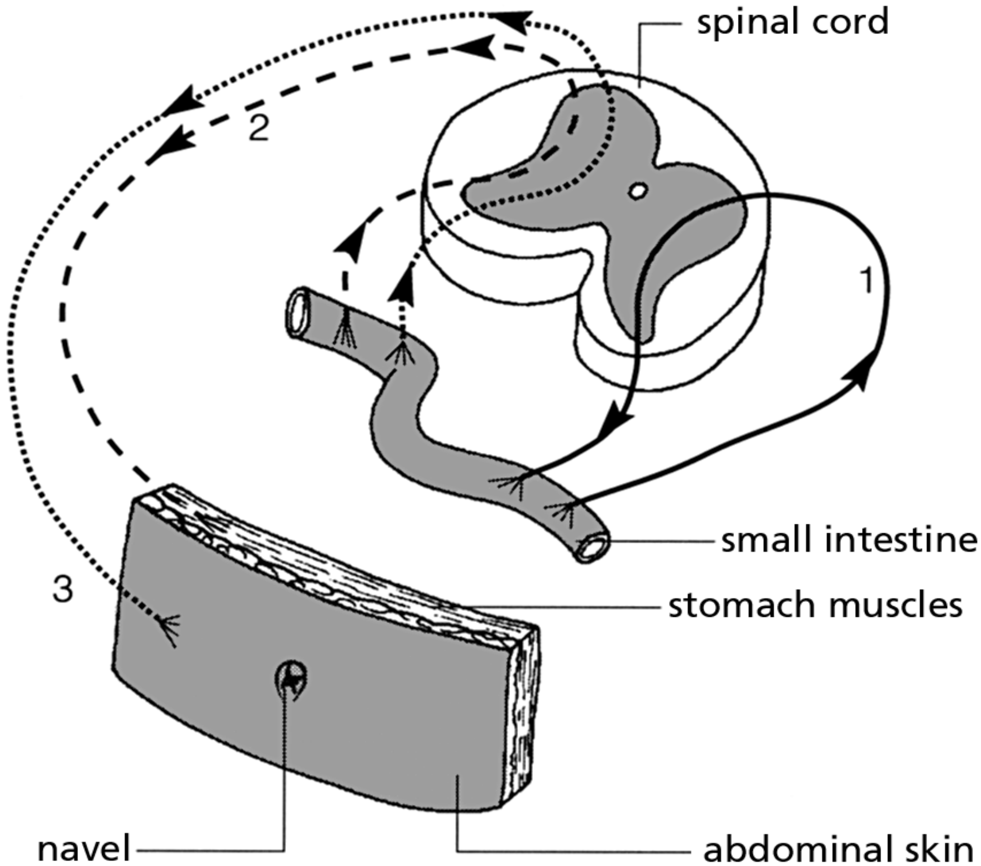
The physiology and anatomy of the vascular supply to the skin produces a certain temperature pattern that may be within certain limits that are considered normal. Yet humans show strong deviations from this ideal pattern. Such deviations may have underlying chronic illness correlations. For example, middle ear infections in neonates often present as a unilateral complaint. That is one side of the head and face produces a pattern of local area temperature increases such as reddening of that side of the face, whilst the other side remains normal.

The body's thermoregulation ability is also controlled through the autonomic nervous system and its neurological innervations. It is a circuitous pathway and may be simply described as follows: information flows from skin to afferent (sensory) nerves to the spinal cord then becomes organ input and then (depending on the health status of the organ) organ information is relayed back to the spinal cord and then to efferent nerves connecting to the skin.



Due to reasons lying in the embryonic evolution of humans, all nerves leaving the spine between two specific intervertebral disks innervate a horizontal slice of the body. Moreover, some innervated areas are arranged in a vertical direction. The main consequence of this segmentation is that different nerves running to or coming from areas in one and the same segment can interact in the spinal cord. An impulse sent by an inner organ can induce an impulse connected to a specific part of the skin. This phenomenon is termed the visceral-cutaneous reflex system or reflex arc.





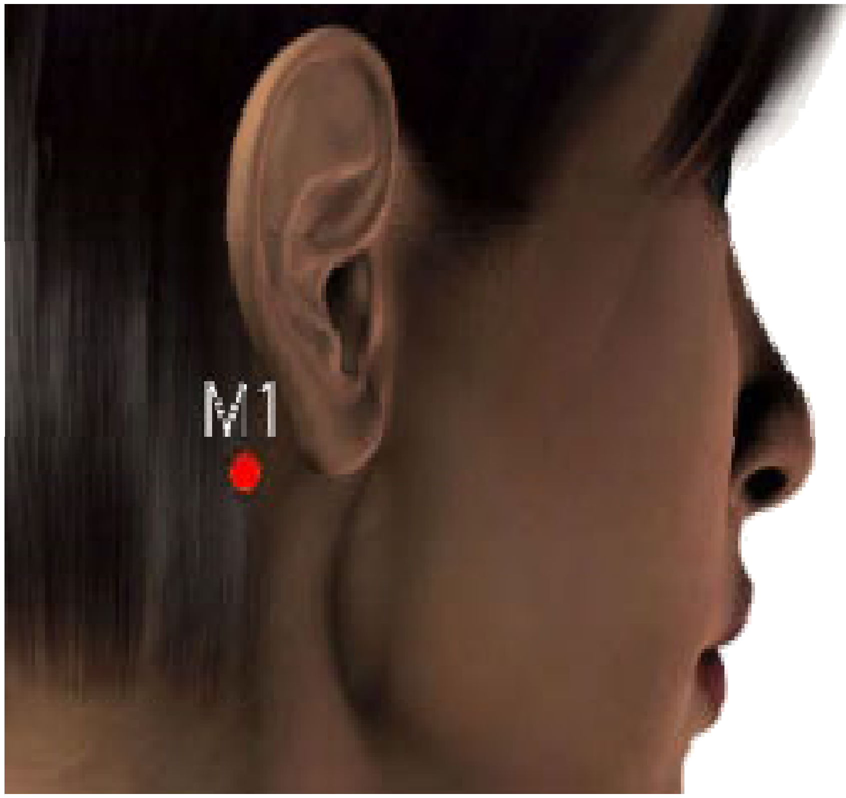
Impulses coming from organs glands and tissues alter various properties of the skin, like the temperature, perspiration, the mechanical tonus and sensitivity. Consequently, pathological changes of an inner organ can locally influence the metabolism, temperature and other properties of the skin via this reflex arc. This phenomenon forms an important physiological basis of CRT.

In 1994 Anbar described an important biochemical and immunological cascade, in which small tumors were capable of producing notable temperature changes. This phenomenon is partially induced by nitric oxide (NO) which is responsible for vasodilatation. NO is synthesized by nitric oxide synthase (NOS), found both as a constitutive form of NOS, especially in endothelial cells, and as an inducible form of NOS, especially in macrophages (Rodenberg, D.A., Chaet, M.S., Bass, R.C.). NOS has been demonstrated in breast carcinoma using tissue immunohistochemistry, and is associated with a high tumor grade (Thomsen, L.L., Miles, D.W., Happerfield, L.).

Nitric oxide is a molecule with potent vasodilating properties. It is a simple highly reactive free radical that readily oxidizes to form nitrite or nitrate ions. It diffuses easily through both hydrophilic and hydrophobic media. Thus, once produced, NO diffuses throughout the surrounding tissues, inside and outside the vascular system, and induces a variety of biochemical changes depending on the specific receptors involved. NO exerts its influence by binding to receptor sites in the endothelium of arteries or arterioles. This causes inhibition of sympathetic vasoconstriction. The end result is NO induced vasodilatation, which in turn may produce an asymmetrical thermovascular pattern.

Organs, Glands and Tissues Measured with CRT

To achieve comparability in CRT, a standard set of points was defined by Dr. Arno Rost in 1975 (*Rost, A. & J).* These points were grouped into three subsets: the 6 standard areas, the dental/jaw areas and the mamma, both right and left. Additionally, the areas at the cubital fossa of the elbows are measured twice, at the beginning and at the end of each the first and the second measurements. This is primarily done to evaluate general regulatory capacity as well as temperature laterality.



Area 1 - Head Points:

GL – glabella - reference point

RN - radix nasi – nasal root – reference point

FS 1 - frontal sinus R

FS 2 - frontal sinus L

T 1 - temple R

T 2 - temple L

CP 1 - commissura palpebrarum medialis R

CP 2 - commissura palpebrarum medialis L

M 1 - Mastoid 1 R

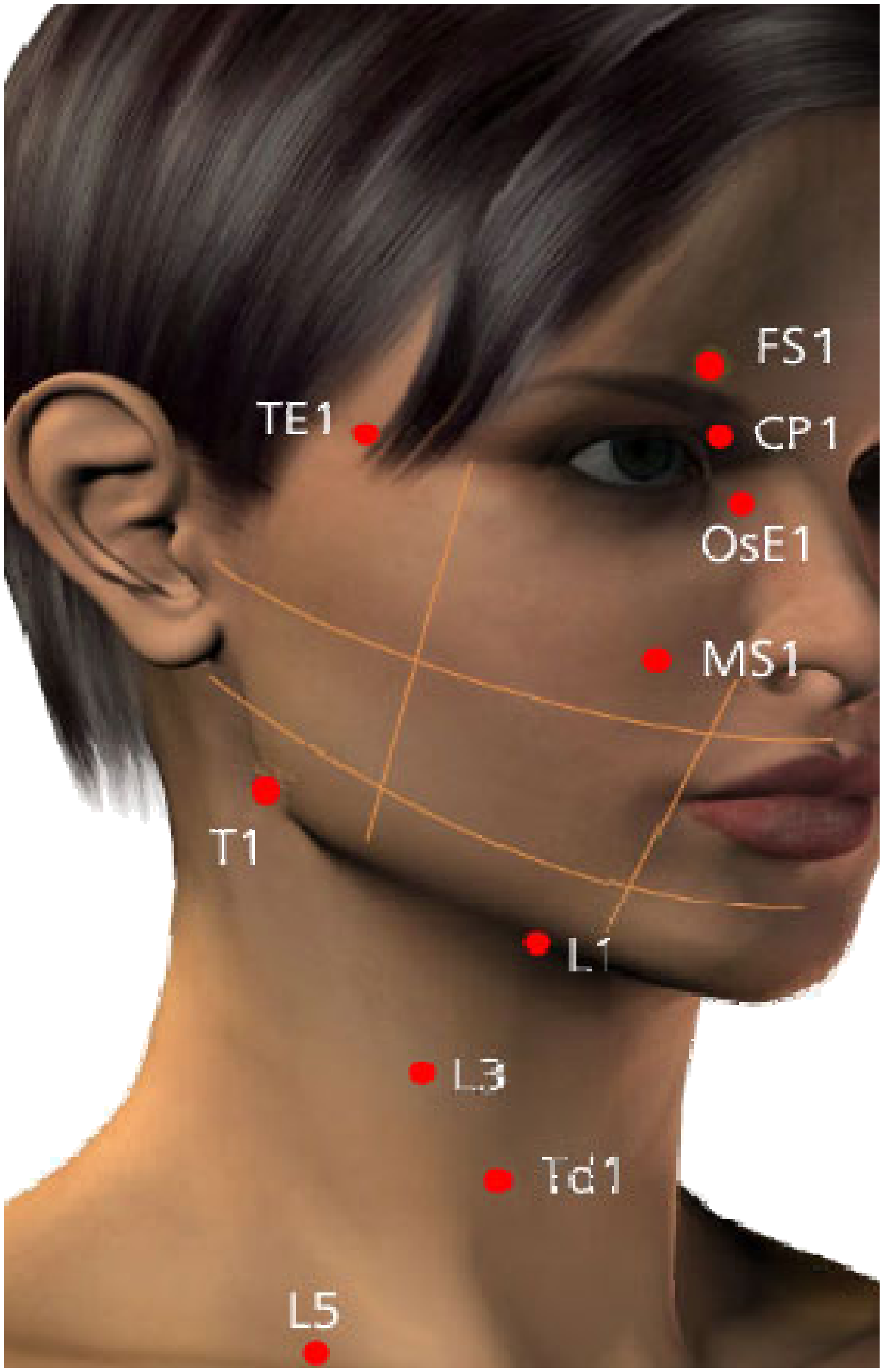
M 2 - Mastoid 2 L

OsE 1 - os ethmoidale R

OsE 2 - os ethmoidale L

MS 1 - maxillary sinus R

Ms 1 - maxillary sinus L

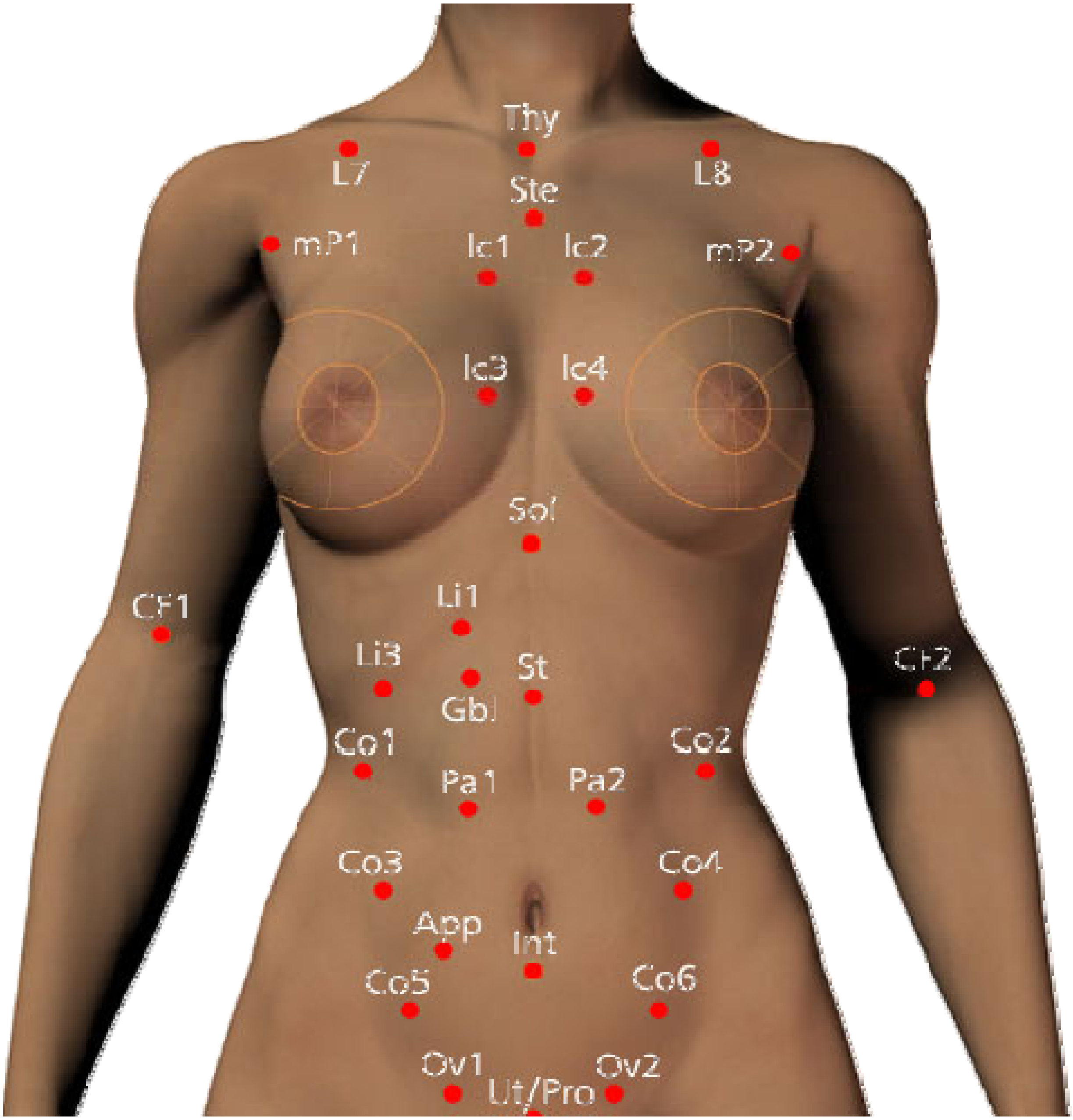

FS1
TE1
CP1
OsE1
MS1
T1
L1
L3
Td1
L5

Area 2 - Neck Points

T 1 – tonsil R
T 2 – tonsil L
L 1 – inframandibular gland R
L 2 – inframandibular gland L
L 3 – ventral edge of m. sternocleidomastoideus R
L 4 – ventral edge of m. sternocleidomastoideus L
L 5 – supraclavicular fossa R
L 6 – supraclavicular fossa L
L 7 – infraclavicular fossa R
L 8 – infraclavicular fossa L
Td 1 – thyroid lobe R
Td 2 – thyroid lobe L
Thy – thymus

Area 3 - Chest Points

Sternum
mP 1 - Pectoris right lateral edge
mP 2 - Pectoris left lateral edge
Ic 1 - Intercostal right (reference)
Ic 2 - Intercostal left (atrium)
Ic 3 - Intercostal right (reference)
Ic 4 - Intercostal left – (myocardial)


Thy
L7
L8
Ste
mP1
Ic1
Ic2
mP2
Ic3
Ic4
Sol
CF1
Li1
Li3
St
Gbl
CF2
Co1
Co2
Pa1
Pa2
Co3
Co4
App
Int
Co5
Co6
Ov1
Ov2
Ut/Pro

Area 4 - Upper Abdominal Points

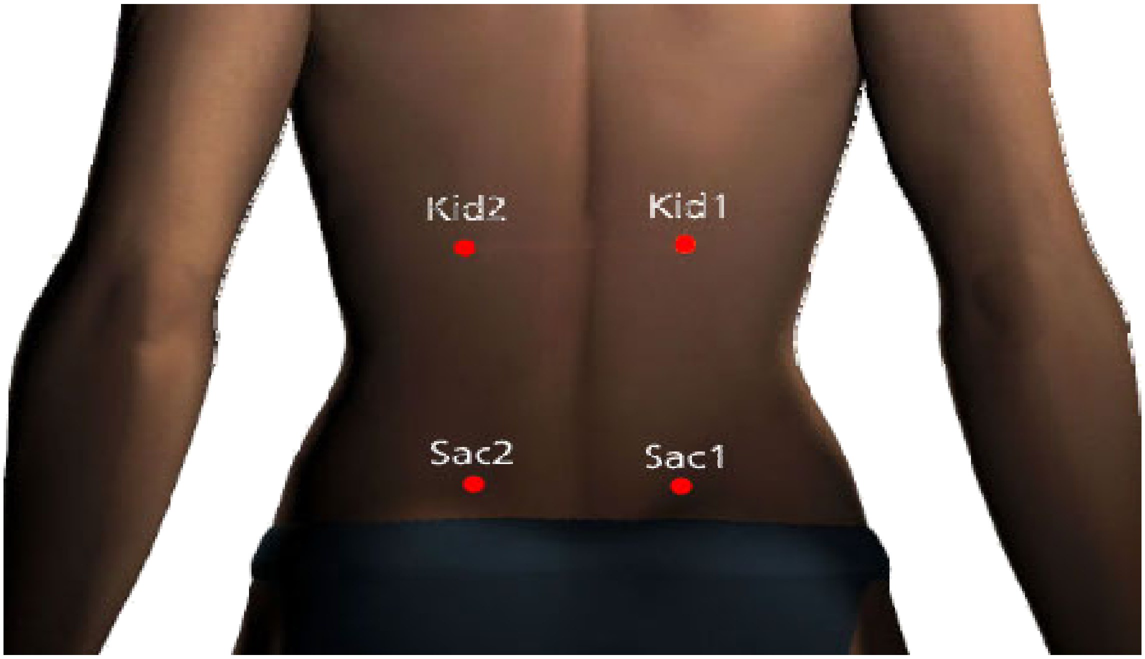
Solar Plexus
Stomach
Liver 1
Liver 3
Gall Bladder
Pancreas 1 (head)
Pancreas 2 (tail)

Area 5 - Lower Abdominal Points

Small Intestine
Colon 1-hepatic flexure)
Colon 2-splenic flexure)
Colon 3 (ascending)
Colon 4 (descending)
Colon 5 (cecum)
Colon 6 (descending sigmoid area)
Appendix
Uterus/Prostate
Ovary/Lymph right
Ovary/Lymph left

Area 6 - Back Points:

Kidney 1 right
Kidney 2 left
Sacroiliac 1 right
Sacroiliac 2 left



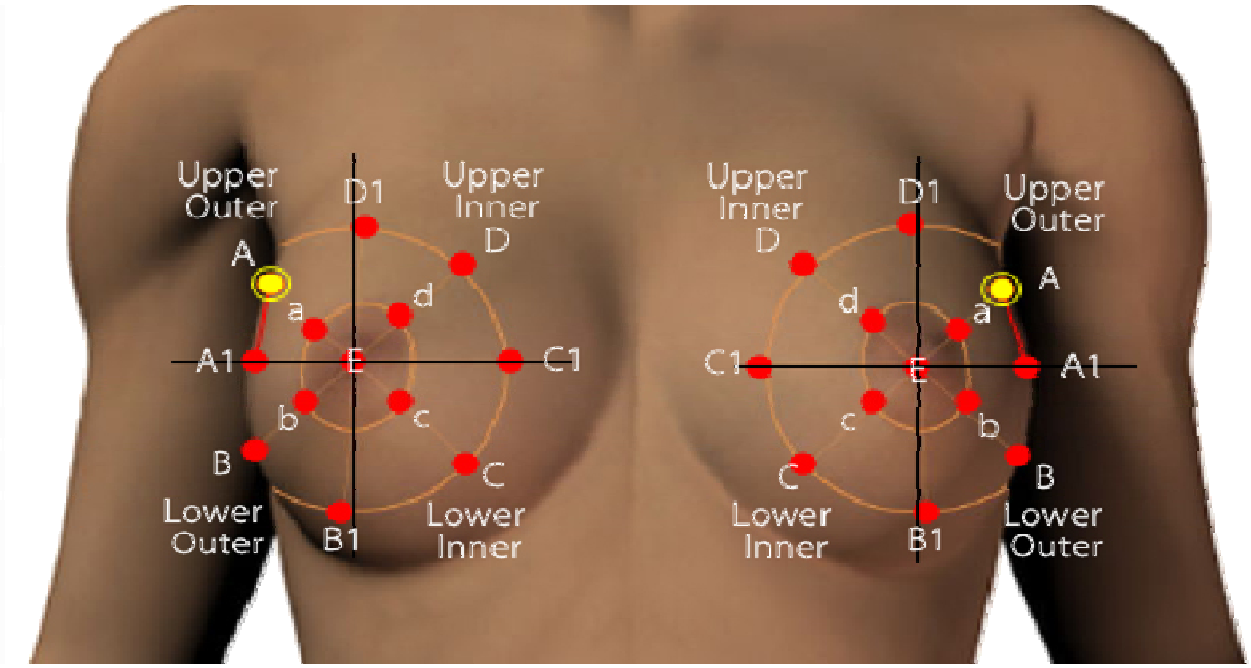
The Dental/Jaw areas:

The dental/jaw points are located over all 32 teeth areas. These are arranged 8 points per quadrant; hence, 8 upper right jaw, 8 upper left jaw, 8 lower right jaw, and 8 lower left jaw. The posterior teeth regulate cooler than the anterior ones, and this pattern forms a sine wave in the thermographic result.

The Breast areas:

The breast areas are mainly measured for females in particular in the context of breast disease diagnosis, but can also be an aid in cardiovascular regulatory evaluation in both females and males.

The breast areas include 13 points on each breast and are arranged as follows:



The primary abnormal contact regulation patterns in the mamma include:

- Hot spots in mamma
- Rigid regulation points in mamma
- Temperature asymmetry from right mamma to left mamma that exceeds greater than 0.7 C.
- Temperature asymmetry in the chest (area 3) from right to left that exceeds greater than 0.5 C.
- Hot spot in pectoris points of area 3 and/or asymmetry of pectoris points from right to left more than 0.5 C.
- Area 3 sternum point rigid regulation
- Rising chaos index in the mamma
- Rising chaos index in the chest

CRT represents an extraordinary technology and potential for assisting practitioners in individually tailoring their clinical approach based on objective data. It is a precise temperature monitor of thermal abnormalities present in a number of diseases and physical injuries. CRT may be used as an aid for diagnosis and prognosis, as well as therapy follow up and rehabilitation monitoring, within clinical fields that include oncology, neurology, cardiology, gastroenterology, rheumatology, pediatrics, orthopedics and many others.

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About Eidam

Eidam Diagnostics Corporation is a privately held Canadian company which is head-quartered in Richmond, British Columbia. The company's primary product, the CRT 2000® Thermographic System, is intended for use in preventive healthcare. The CRT 2000® has obtained both the CE Mark and has been for sale in the United States based upon the device's premarket notification (510(k)).

Note: The CRT 2000® is not intended to serve as a sole diagnostic screening procedure.

CRT 2000® Thermographic System
Supply voltage: AC 110 - 240 V
Power Input: 180 Watt
Frequency: Hz 50/60
Storage Temperature Range: 0°C - 50°C
Graphic LCD Display
Sensor
Contact measurement
Response Time: <1 seconds
Temperature Resolution: <0.1°C
CE: This device complies with EU directives 93/42/EU*
FDA 510K # K 973177 (USA)

Requires Internet Connection

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