

INFRARED THERMOGRAPHY

A BRIDGE BETWEEN WESTERN AND ORIENTAL MEDICINES



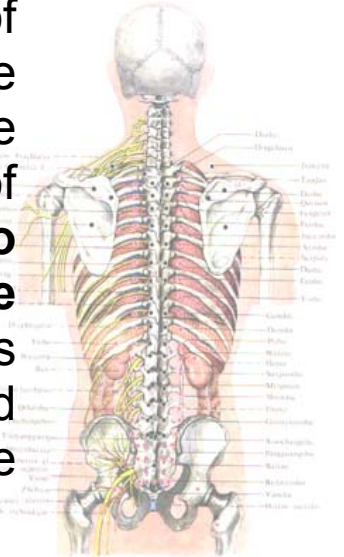
The main problem of modern acupuncture, which restricts its scientific development and makes difficult integration of Western and Oriental medicine, is the fact, that there is no good reliable scientific method to research the location and functional condition of acupuncture point - the main object of acupuncture manipulations.

Today there are a lot of methods for diagnosing the functional condition of acupoint. Most of them are based on measuring of some electrical parameters of acupoint. Using those methods, we have to consider, that acupuncture point is exactly located in this area of skin, where we measure electrical parameters. If this is false ? What information we will receive if we were missed ?

Acupuncture system is a very sensitive system and quickly reacts to any disease. In this case both functional condition and location of acupoints are changing.



Speaking about location of acupuncture point, we must take into consideration, that there are positions of acupoints of **statistical Chinese man, who lived in China territory more than 2000 years ago**. World has been changed since that time and the position of acupoint may be changed too.



The second problem related to application of diagnostic methods is that all of them are so-called "active" - it means, that diagnostic device applies some influence (in this case - electrical power) on the patient's skin in projection of acupoint and really operator estimates the reaction of the skin on this influence. Because of this fact all electrical methods are difficult in repetition and can't be considered as real scientific ones.

Thus, the method for researching the acupoints must have the following main features:

1. **Passive measuring** - i.e. method must not influence on the object (acupoint).
2. **Non-specificity** - i.e. method must analyze one of the most universal physiologic parameter.
3. **Repeatability** - in repeat application in some time interval method must demonstrate the equal results.
4. **Technical simple** - method must be very simple in using and devices for its realization must be available for any doctors.

***Only one method satisfies to all of these criteria.
This is...***

INFRARED THERMOGRAPHY

In fact, infrared thermography has the following unique characteristics, which are very useful to solve our problem:

1. Infrared thermography is non-contact method and does not perform any influence on the researched object - i.e. this is **"passive"** diagnostic method.
2. Temperature is one of the most universal physiologic reaction of the human body - i.e. this is **non-specificity**.
3. Thermovisual examination has a **good repeatability** - in the case of absence of strong external influence temperature parameters of acupoints are stable during the month and more.
4. Infrared thermography is **very simple method** and there are a lot of infrared cameras in the World

There are three main directions of application of infrared thermography in medicine:

- ❖ Researching the location of acupuncture points - **acupuncture thermodiagnosics**.
- ❖ Thermography application for control the effectiveness of acupuncture treatment - **thermovisual control in acupuncture**.
- ❖ Researching the temperature characteristics of acupoints for the purpose to diagnose common diseases - **thermovisual acupuncture reflexodiagnosics**.

Acupuncture Thermodiagnosics

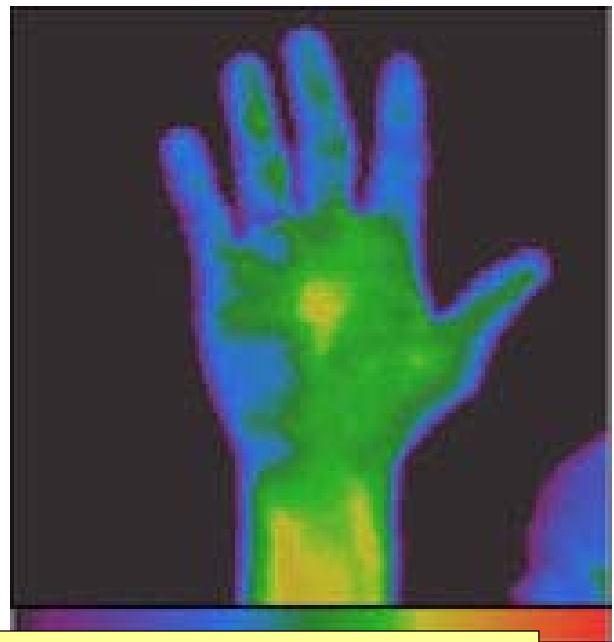
Before one consider, that in thermogram we shall look most of acupoints as blinking drops or stars above their anatomic position. Also one supposed to look the acupuncture channels like think lines connected the acupoints. But really the picture is not too simple.

Researches showed, that acupoint may be in one of the three functional stable conditions:

- **hyperthermic condition**, when its temperature is more than in $0,6^{\circ}\text{C}$ higher than the surrounding tissue - this is "excess" condition in terms of Oriental medicine;
- **hypothermic condition**, when its temperature is more than in $0,6^{\circ}\text{C}$ lower than the surrounding tissue - this is "deficiency" condition;
- **isothermic condition**, when the temperature gradient between the acupoint and surrounding tissue is in $\pm 0,6^{\circ}\text{C}$ limits - in this case it indicates the "normal" functional condition of acupoint.

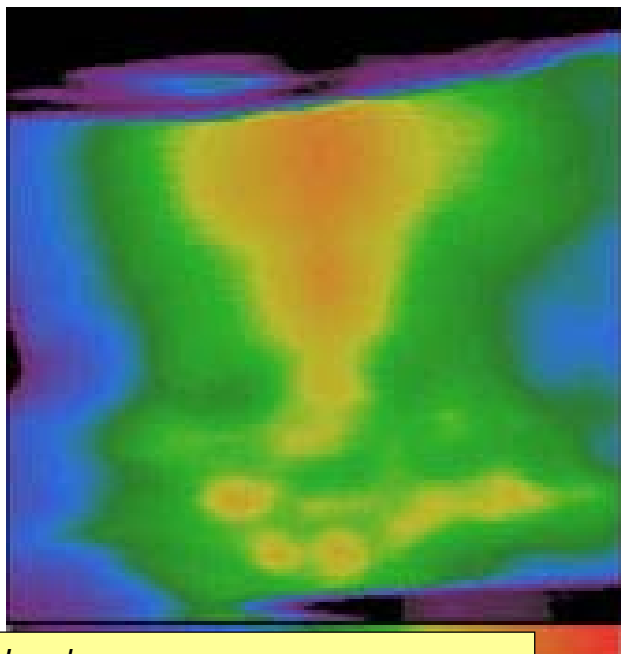


Left palm
Hyperthermic area above
Yu-Ji acupoint

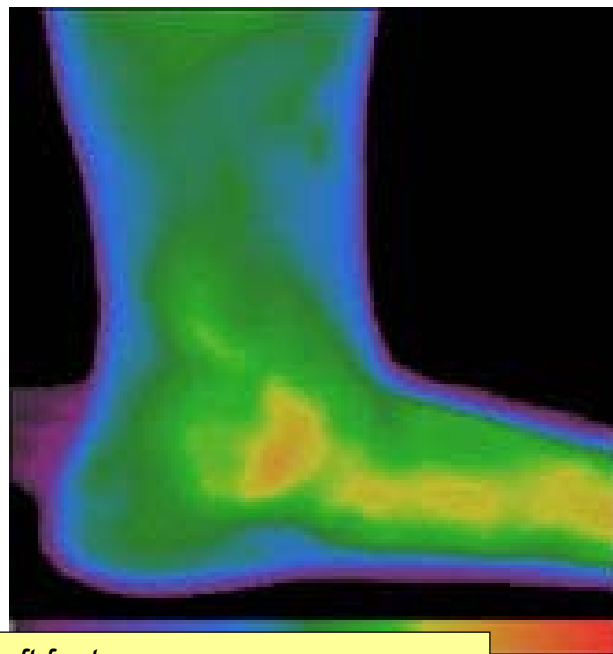


Right palm
Hypothermia above Shen-Men and
Shao-Fu acupoints

Often in thermovisual examination we can see not only one, but several acupoints, located at the same or different acupuncture channels. In these cases on thermogram the one see group of warm or cold spots, located above the acupoints.



Lumbar area
Hyperthermia of Ba-Liao acupoints
and acupoints of the Back Middle
Channel

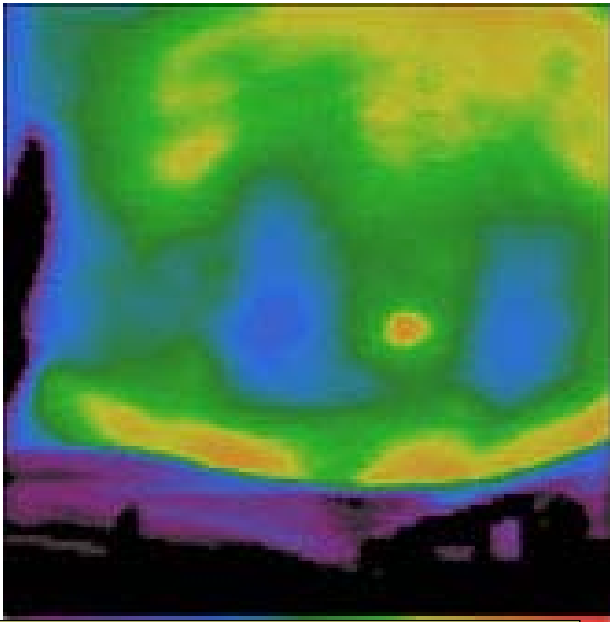


Left foot
Hyperthermia along the Spleen
Channel

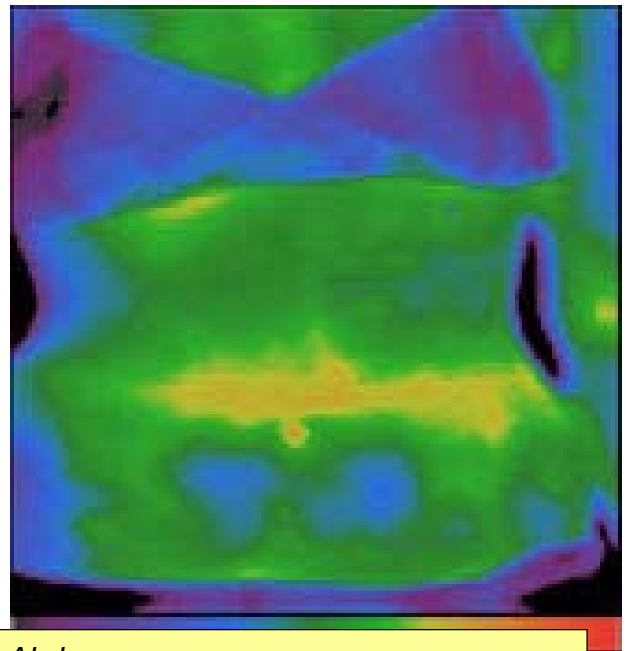
One of advantages of infrared thermography is that we can examine large skin area, so we can detect the location and functional condition of many acupuncture points at the same time.

The deviation of acupoints location is very often phenomena. The value of this deviation is dependant on functional condition of acupoint and related acupuncture channel and on the anatomic features of the area. If one will use thermovisual findings instead of atlas, the effectiveness of the treatment will be increased in many times.

For example, Tian-Shu acupoint is usually used in treatment of intestinal dysbacteriosis. But in most cases hypothermia area, related to Tian-Shu acupoint, is located not at the standard position, but lower. Using standard (by manuscripts) detection of Tian-Shu the effectiveness of acupuncture treatment of intestinal dysbacteriosis (needling or moxibustion) not exceed 60 %, but using thermovisual detection of this acupoint the effectiveness becomes up to 95 % and duration of treatment usually decreases from 10-12 to 3-5 procedures.



Abdomen
Usual position of Tian-Shu acupoint is on the level of umbilicus



Abdomen
Hypothermic area locates in 40-50 mm lower than the umbilicus

Very interesting and useful is application of infrared thermography for **Su-Jok acupuncture** (Su-Ji, manus-acupuncture, palm acupuncture). On thermogram we can detect the individual position of acupoints with changed functional condition (i.e. to make an acupuncture prescription), to choice the method of influence and to control its adequateness. On the base of clinical data collected from more than 2000 thermograms the Thermal Map of the palm with 27 active areas, reflecting the condition of all principal internal organs and functional systems, was developed.



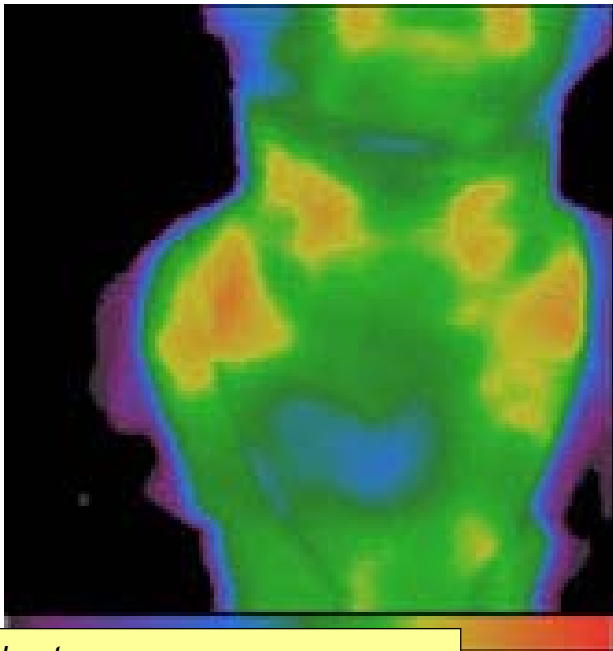
**Now, with a help of modern infrared thermography,
ancient Chinese acupuncture became**

VISUAL ACUPUNCTURE

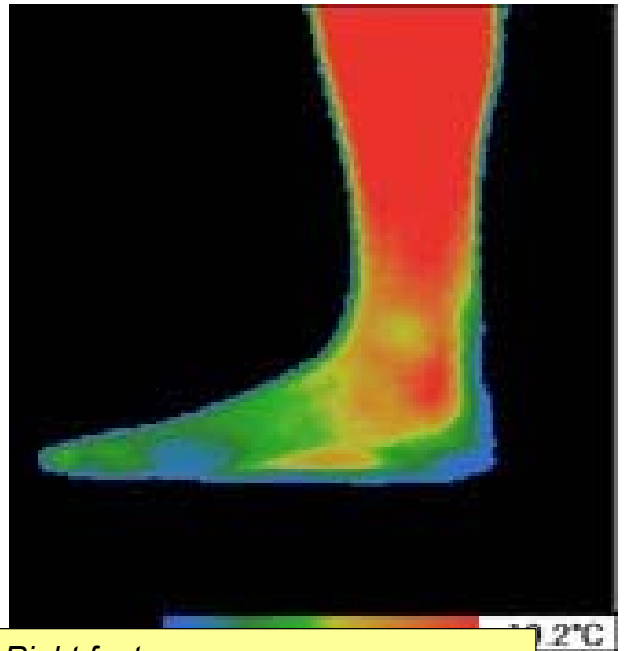
Thermovisual acupuncture reflexodiagnostics

Clinical data showed, that in many diseases thermograms have typical acupoints. This fact allows to develop new direction in general medicine - **thermovisual acupuncture reflexodiagnostics (TAD)**.

First clinical application of TAD was the method of early diagnosing of secondary T-cell immunodeficiency syndrome. It was detected, that in immunodeficiency condition on thermograms detected the area of decreasing temperature in acupoints, located above the thymus and along the Spleen Channel on the foot. The diagnostic criteria of immunodeficiency syndrome is decreasing the temperature above just one of these areas with gradient more than 0,4 °C. In series of experiments a strong correlation of thermovisual signs with immune status was detected. Moreover, in the cases where infrared thermography detected immunodeficiency condition but blood analysis were in normal range, patients had clinical manifestations of immunodeficiency, such as recurrent infections, often catching a cold, chronic and latent infections. Thus, TAD allows to perform early pre-laboratory diagnostics of immunodeficiency condition.



Chest
Hypothermic area above the thymus.



Right foot
Hypothermia above Tai-Bai and Gun-Sun acupoints.

For today are elaborated TAD criteria for more than 20 diseases and pathological conditions, including

- secondary T-cell immunodeficiency condition;
- vegetative neurosis;
- intracranial hypertension;
- cerebral astenia (chronic fatigue syndrome);
- dyskinesia of biliary ducts;
- bronchial asthma;
- infection of urinary tract;
- dysfunction of the thyroid gland;
- acute tonsillitis etc.

Good repeatability of infrared data made acupuncture

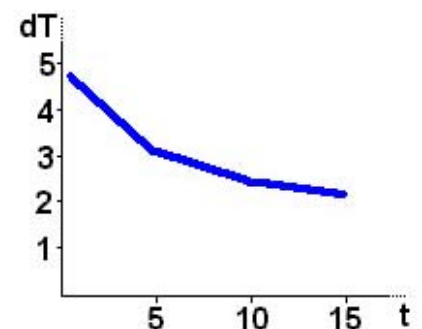
SCIENTIFIC ACUPUNCTURE

Infrared thermography allows to perform

ACUPUNCTURE CONTROL

Thermovisual control in acupuncture

Using infrared thermography we can objectively control the condition of acupoint during the treatment procedure. It's possible, because skin temperature above the acupoint is relative stable. If one performs adequate treatment, the condition of acupoint is changing and in some time temperature above this point turns to isothermic, that means invisible on thermogram - it corresponds to normal functional condition of acupoint. This condition correlates to clinical data. In the case of inadequate treatment temperature parameters above the acupoint remain the same or becomes more severe (increasing or reversing of temperature gradient, increasing the square of thermal abnormal area with involving of other acupoints or channels).



Thermograms of the left palm before (left) and in 10 minutes (right) after insertion of the needle into "esophagus" acupoint.

For more information please call to "Infrared Intellectual Industry"

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